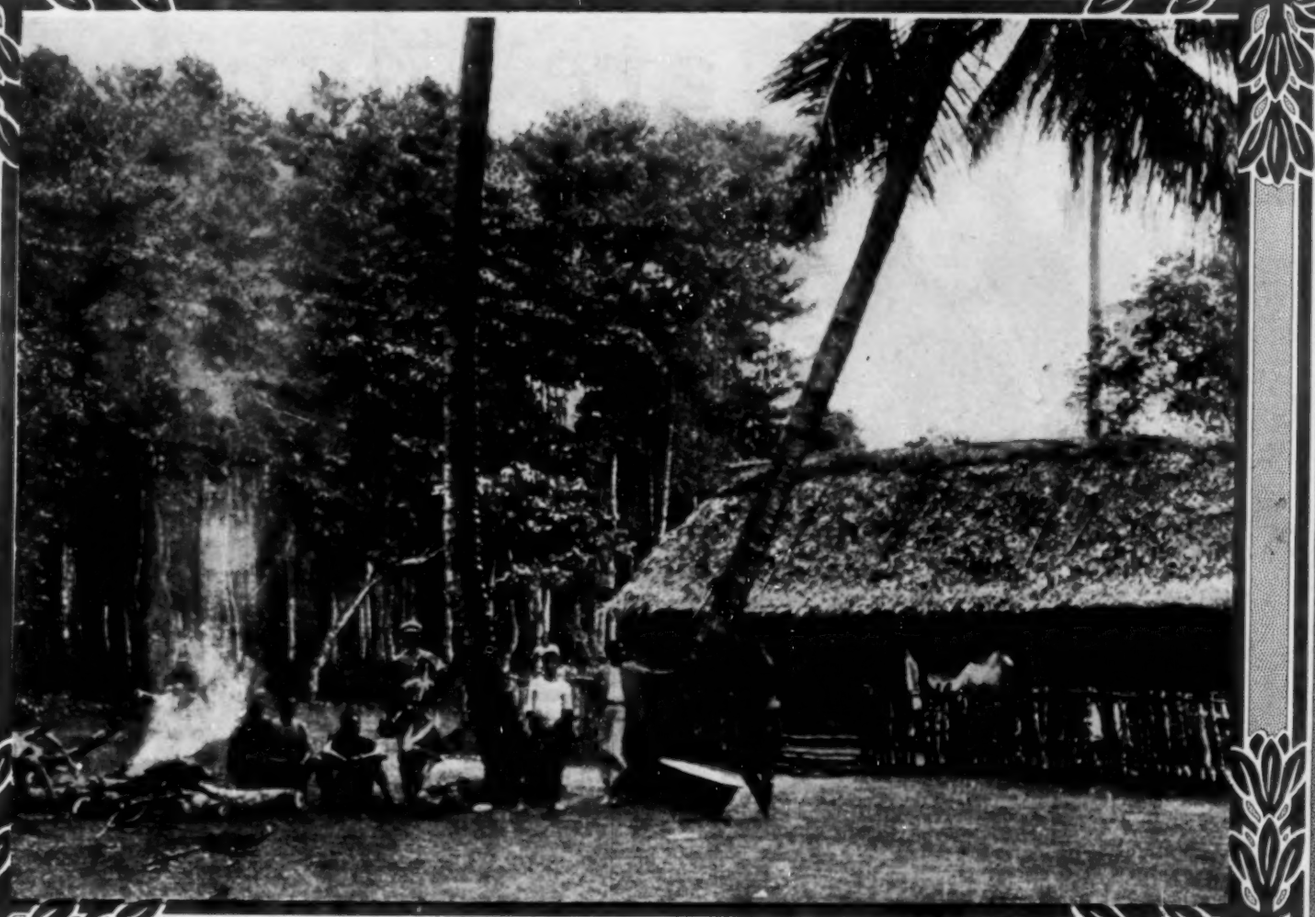
THE RUBBER AGE



Rubber Trading Center, Southern Nigeria

August 10th
1917

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United States Tires

THE RUBBER AGE

AUGUST 10, 1917 VOL. I. NO. 10

Member of the Associated Business Papers

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THE RUBBER AGE

Manufacturing Insulated Wire and Cables—Tinning

Little has been written on the manufacture of rubber insulated wires and cables, one of the most important branches of the rubber industry.

There are practically eight separate processes in the making of rubber covered wires and cables, as follows:

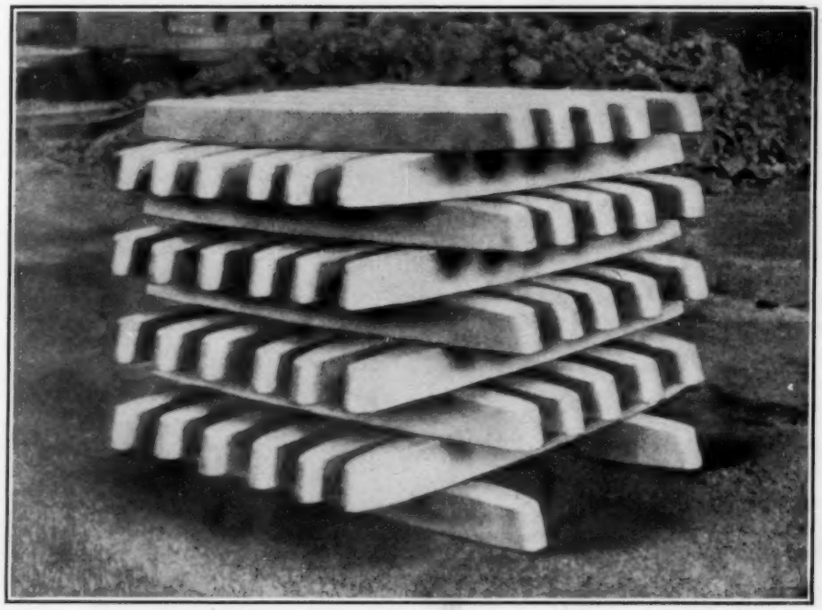
1. Tinning.
2. Mixing of Compounds.
3. Insulating.
4. Vulcanizing.
5. Braiding.
6. Waxing.
7. Finishing.
8. Testing.

A means or medium for transferring electrical energy from the generating source to the receiving device is one of the necessary parts of any electrical circuit. Commercially, the three substances most widely used as electrical conductors are copper, iron and aluminum. Of these useful metals, copper is by far the best conductor of electricity, while next in order come aluminum and iron.

Copper possesses many desirable physical properties and with but few exceptions, it is with tin and zinc the only metal used in rubber insulated wires and cables.

In addition to its high electrical conductivity, copper has to a high degree the qualities of malleability and ductility, which make it an ideal metal for wire drawing. Further, it has the faculty of resisting oxidization and is next to silver, the best conductor of electricity. Besides, its supply is adequate for the demand.

While there are many manufacturers of insulated wires and cables who do not produce the wire they use, the large concerns engaged in this branch of the rubber industry have extensive wire drawing and cabling departments attached to their plants, and a brief description of the work done in these is essential for completeness.



COPPER BILLETS

Commercially pure copper comes to the wire-drawing department of insulated wire and cable factories in the shape of billets from which it is rolled and drawn into wires of various diameters and lengths.

The drawing process consists, briefly, in reducing the diameter of the copper billets by rolling them and then pulling them through tapering holes in iron or steel plates. At each draft the diameter decreases and the length increases until wire thus formed has undergone a sufficient number of such operations and consequent reductions to bring it to the desired diameter.

Several series of drafts are required to produce the finer sizes of wire, it being necessary to heat the metal between each draft to relieve the internal molecular strain produced by cold drawing. This heating process is known as annealing and makes the metal more soft and ductile.

The objection to the annealing process is that it causes a scale to form on the surface of the wire. This scale can be removed in the case of iron wire, by passing the wire through an acid bath and liming it, but in drawing copper wire its formation must be prevented as far as possible for this form of oxidation affects the properties of the wire and is particularly objectionable in the case of fine magnet wire.

The annealing process designed to prevent the formation of scale consists, essentially, in preventing the metal, while at a high temperature, from coming into contact with the air. This is known as " bright annealing " for the reason that the metal retains a bright, brilliant surface free of scale. By the bright annealing process wire is obtained as bright and smooth as if cold drawn.

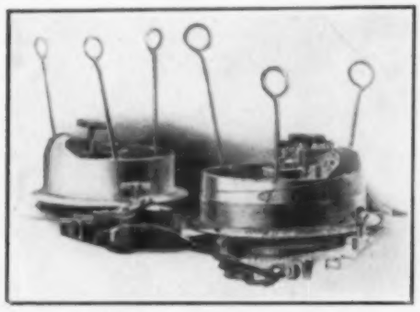
During the drawing process the wire is drawn as far as possible with-

out breaking; it is then annealed and drawn again, until the finest sizes are finally produced. Extra fine magnet wire is obtained by drawing through holes drilled in diamonds.

Effect of Drawing on Quality

The proper regulation of the successive drafts has much to do with the physical condition of the finished wire. Many drafts, each giving only a slight reduction, produce an entirely different effect from that of a less number of drafts made to produce a same diameter of wire. There is a multitude of details connected with wire drawing, each having its own peculiar effect.

Cold rolling and cold drawing of metal invariably increase its hard-



WIRE DRAWING DRUMS

ness, stiffness, elasticity and tensile strength. Hard drawn copper wire, for instance, has greater tensile strength than annealed or soft drawn copper wire has.

Stranding

If a solid copper wire is made larger than 0.48 inch it becomes hard to splice and difficult to handle owing to its size and stiffness. Conductors larger than this are built up of small wires twisted into a strand or cable. The flexibility of the cable increases as the size of its constituent wires decreases or as the number of wires increases.

It is possible to build up cables from any number of wires but there are certain combinations only that can be used to obtain a smooth symmetrical cable. These combinations are governed by well established geometrical rules.

A cable consists of any group of wires twisted together helically or of any number of such groups. The term wire, used in connection with a cable serves to designate the individual solid wires in that cable. The pitch or lay of a cable is the number of torsions or twists to a given length of the cable.

A strand is a group of single wires in one or more layers, twisted together helically and symmetrically with a uniform pitch around a single central wire of neutral axis. This type of construction is known as the "concentric strand."

A collection of straight or twisted wires, grouped together with little regard for their geometrical arrangement is sometimes called a "bunched strand."

Cables are built up on a stranding-machine. The successive layers are wound in opposite direction and one of the chief objects of the manufacturers is the production of a cable that has the most compact form, the smallest diameter for a given capacity, and presents the smoothest and most uniform external surface possible to obtain.

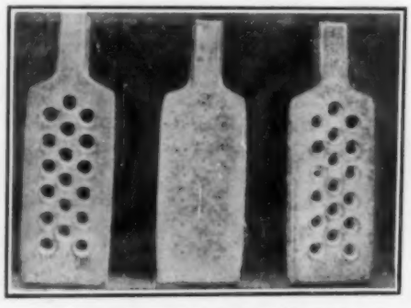
Insulations

Electrical conductors are either used "bare," or they are insulated with rubber, gutta-percha, paper, silk, cotton, or other materials.

Rubber is an excellent insulating material, particularly suitable for insulating wires for which purpose its elasticity and tensile strength as well as its electrical resistivity are unsurpassed. The resistivity or specific resistance of rubber is greater than that of most all of the other insulating materials used commercially in electrical work.

Rubber-covered wires, as used for general electrical purposes, are composed of three essential parts: The metal conductor, the wall of rubber insulation, and some form of protection over these, such as braid, tape and braid, or sheathing.

The electrical conductor is usually of soft annealed, commercially pure



PLATES FOR DRAWING WIRES

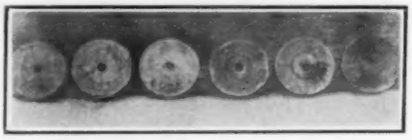
copper, either solid, or in stranded form.

Tinning

Copper is easily attacked by the sulphur which is necessary for the vulcanizing of rubber and the copper sulphide produced by this chemical attack works injuriously on rubber. This being the case in wire and cable rubber insulating, it is necessary to prevent the rubber wall from coming into direct contact with the copper wire. This is accomplished by covering the surface of the wire before applying the rubber insulation to it.

Cotton and other fibers have been used for this purpose, but the method most universally adopted is to cover the surface of the copper wire with a thin coat of tin or zinc. This is accomplished by what is known as the tinning process. Some manufacturers combine tinning with wrapping to insure against contact between the copper wire and its rubber insulation.

The tinning process consists essentially in running the copper wire first through an acid bath and then through a bath of molten tin. Though simple enough to describe, this



SPECIAL DIAMOND DIES

process is in actual performance complex, and requires expert workmanship and careful supervision.

During the tinning process, the wire is first thoroughly cleaned by being run through an acid bath. Then it is run through a tank of water to wash away all traces of acid, next through a flux which facilitates the adherence or fusion of the tin coating, and finally through a tank of molten tin or zinc. As it comes out of the molten metal, the tinned wire is run through special devices which remove all excess of metal and make the coating smooth and of uniform thickness. The tinned wire is then washed and wiped with naptha to make it absolutely clean and smooth before insulating.

It is difficult to get the tin or zinc to adhere in a uniform thickness to all of the surface of the wire. It is also important that the coating be bright and smooth, and that it must not peel or crack. In all this the temperature of the molten metal plays an important part.

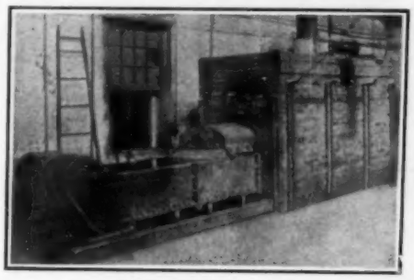
Tin is ideal for protecting copper wires from the action of the free sulphur that is always contained to a certain extent in rubber insulating. Sulphur, which is well known to have a great affinity for copper at normal temperatures has practically none for tin.

Tin, at a temperature slightly higher than its melting point, forms an excellent thin coating on a copper wire passing through it. The tinning operation can also be performed by electrolytic process, but the mechanical method of running the wire through the molten metal is much more simple and practicable, and is therefore in general commercial use.

The molten tin is heated in a large cast iron metal pot, but care must be taken that the metal does not become too hot. A few degrees above its melt-

ing point is all the heat necessary. Overheating is injurious as it causes the tin to run too freely from the wire as the latter emerges from the pot with the result that there remains no coating on the top side of the wire.

Further, overheating gives a yellowish tinge to the metal coating and also causes the formation of an excessive thickness of tin ash on the surface of the molten metal. This ash formation is due to the oxidization of the molten metal by the air and, to reduce it, to a minimum tinning tanks are made narrow at their top, but affording more than sufficient opening



BRIGHT ANNEALING FURNACE

for the wires to pass in and out again. It is not necessary to constantly remove the tin ash which forms on the surface of the molten metal; it suffices to keep clear the spots where the wires enter and emerge from the bath. In fact it is best to leave this ash coating on the surface for it keeps air from the molten metal, thereby reducing further oxidization and formation of ash.

Tinning tanks should be deep enough to contain a considerable quantity of molten metal so as to make it easier to maintain a uniform temperature. A small quantity of fused metal is more subject to variations in its temperature than a larger one.

Crude Rubber

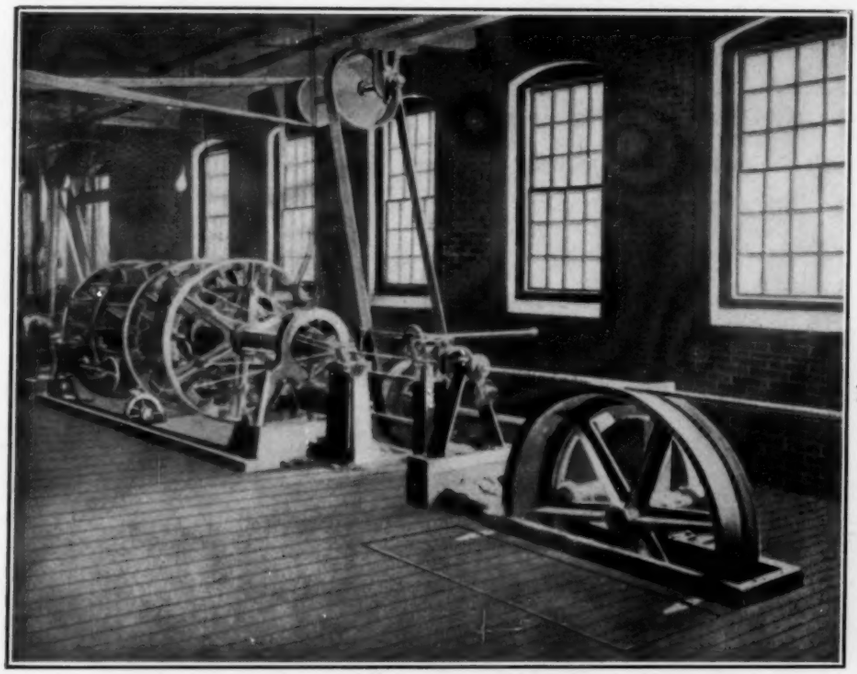
To the layman, crude rubber is all crude rubber but this is not so to the rubber insulated wire and cable manufacturer. All kinds and grades of crude rubber are not suitable for electrical insulating purposes, for there is wide variation in crude rubber qualities due chiefly to impurities and probably also in some degree to obscure differences in the chemical composition of pure rubber itself. The exact nature of such differences has never been definitely and satisfactorily explained because of the complexity of the problem.

The first step in the preparation of crude rubber for insulating purposes, as in other lines of rubber manufacture, is to free it from impurities such as bark and sand.

This is accomplished by passing the crude rubber between two corrugated rolls revolving in opposite directions and at different speeds. The differential motion between these rolls breaks up the rubber while a stream of water, played on it, carries away such impurities as are freed by the process.

After having been sent through the rolls of the washing mill over and again until well cleaned, the crude rubber is roughly sheeted by passing through these or other rolls and is hung up to dry in a heated and well ventilated drying room or placed on trays in a vacuum drier where it is subjected to vacuum and heat which extract all moisture from it. For wire insulating, crude rubber must be positively free from dampness and moisture.

(A description of the subsequent processes employed in the manufacture of insulated wire and cables will be published in later issues of THE RUBBER AGE.)



STRANDING MACHINE

Pneumatic Tires for War Use

When anyone suggests that pneumatic tires be used on army officers' cars, cars under actual war conditions, there is always speculation as to just how long it will be before flying bullets will puncture the tires.

The Goodyear Tire & Rubber Co. became interested in the subject and recently had a number of tests made at the Northwestern Military and Naval Academy, Lake Geneva, Wis. An armored car owned by the Academy was mounted on Goodyear Cord Tires and used as a target. The detailed report follows:

The armored car was equipped with Goodyear Cord Tires and all shots were fired from within fifty yards of the wheels, the desire being to secure the maximum velocity of the projectile. As near as possible the wheel was running in all cases except the last, at approximately ten miles per hour. Had either the speed of the wheel or the distance of the rifleman been increased, the result could have been even more favorable to the tire.

Shot No. 1.—Krag-Jorgensen carbine, nickel jacketed bullet; struck edge of the tire and ricocheted without entering.

Shot No. 2—Same rifle and cartridge; entered side of tire coming out on rim and denting rim.

Shot No. 3.—Same rifle and cartridge; struck on side of tire, slightly cutting the rubber.

Shot No. 4.—Same rifle and cartridge; struck tire on the side and came out on same side of tire near the rim.

Shot No. 5.—Same rifle and cartridge; same result as No. 4.

Shot No. 6.—U. S. Magazine rifle, Model 1903, pointed ammunition; entered side near the tread, followed fabric to the rim, glanced and came out several inches farther down.

Shot No. 7.—Same rifle and ammunition as No. 6; entered in center of tread, followed fabric and the projectile remained between the rim and inner tube.

Shot No. 8.—Rifle and ammunition same; entered tire through the tread and dented rim on the side.

Shot No. 9.—Rifle and ammunition same; entered tread, came out on rim.

Shot No. 10.—Rifle and ammunition same; entered center of tread, followed fabric between rubber and tread for fifteen inches, then burst out.

Shot No. 11.—Rifle and ammunition same; entered squarely center of tread, coming out on rim.

In No. 6 and No. 10, where the bullet came out at the same relative spot there was a tearing of fabric through to the inner tube, but not enough to cause real puncture. No. 12 was fired with the wheel standing still and the rifle held so that there would be no deflecting angle; result, pointed ball perforated casing, inner tube, rim, three-eighths-inch iron felloe and shattered itself on iron protecting plate of the wheel.

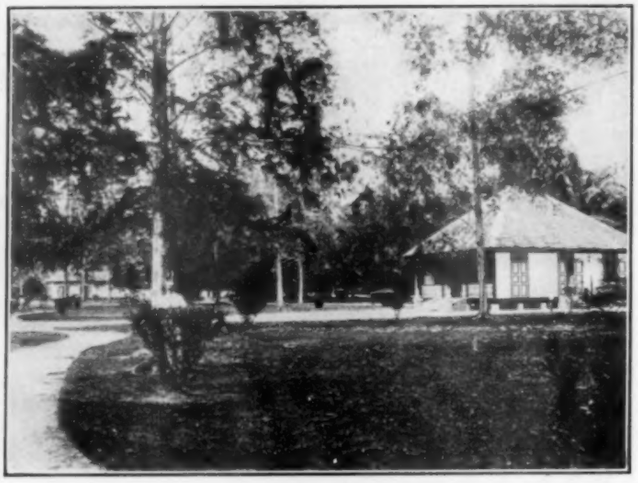
The test showed that under ordinary field conditions fully 90 per cent of shots striking a tire would not result in punctures, and that cord tires because of their resiliency, greater flexibility and speed possibilities seem to be more feasible for military work than solids.

Mechanical Goods Manufacturers' Division

A general meeting of the Mechanical Rubber Goods Manufacturers' Division will be held at the headquarters of the Rubber Association of America, 17 Battery Place, New York City, Wednesday, August 15, at 2 p. m. The cotton duck situation will be among the matters discussed.

The mechanical rubber goods factories are threatened with a shortage of cotton duck which may have serious consequences unless the Government consents to release some of the yarn it has purchased for weaving heavy army ducks.

OFFICE AND CLUB, SOENGEI SIKASSIM ESTATE



HEAD OFFICE, KISARAN ASAHAN

American Rubber Plantations in Sumatra

(Photographs Copyrighted by General Rubber Co.)

The Chamber of Commerce of Medan, Sumatra, Dutch East Indies, reports that forty-one thousand acres have been planted and another nine thousand will be added to the plantations of the General Rubber Co. of New York. It is expected to harvest a crop of five hundred pounds to the acre or a yearly output of twenty-five million pounds of dry rubber.

The East and West width of the planted area is sixteen miles and the length North and South is eighteen miles. The network of wide splendid roads has a mileage of one hundred and sixty miles. There are twenty-one motor trucks and motor cars on the plantation, and a narrow gage railroad is to be constructed.

The complete laboratories have a large staff of chemists and botanists. The company has its own hospital and doctors, and its own architect for buildings. Eleven thousand coolies are employed.

On this estate, the latex is coagulated undiluted without the addition of acid. Thick slabs are made, which produce a most obnoxious odor. These are sent to the factory where they are cut into thinner slabs which are put through heavy rollers but once. The result of this is a very coarse crepe which is pressed into cakes, which are placed to dry out for a period of from fifteen to twenty days. No hot air is used in drying. After drying the smell lessens.

These slabs are then pressed into bundles of twenty pounds each, and eighteen bundles are pressed into one large bundle which is bound securely by strap iron, and then covered with white cotton cloth and as an outer covering with jude bags. They are then ready for shipment to America.

The packing is cheap and simple. It seems strange to the old idea that this method of preparation and packing, taking into consideration the pungent odor, carries such good results. The rubber is valued at one cent more per pound than the best plantation rubber, smoked sheet or pale crepe, and its tensile strength and recovery is said to be higher than the best Para rubber. All this is the result of most careful investigations, experiments, scientific forestry, etc., and it gives the American manufacturers interested in it exactly what they want.

The product is not sold through the market as it is all taken by the United States Rubber Co. and all goes straight to the factories. No unnecessary labor is placed upon it to get it in form to meet market demands in appearances, and the smell is of no consequence. This odor is the result of the dissolution of the albumen which the rubber contains, and has no bad effects upon the product.

This class of rubber, although near to nature and not macerated by machinery in its process of manufacture to its detriment, is not made to follow the call and whims of the market.

It is suggested that it may not be advisable that planters who have not arranged the sale of the product to American manufacturers, to try this method of preparing rubber which may not be as simple as it seems, as it is claimed a part of this preparation is still kept a great secret.

These estates have experimented much on tapping systems and after very many tests it has been decided that the most economical manner of tapping is one left cut covering half the circumference of the tree.

This report gives a rough idea of the enormous extent of the operations of the General Rubber Co., which represents numerous American factories that do not wish to depend on the rubber as it is prepared for the London market, and who want their raw material prepared as they desire it, in both form and quality.

VIEW FROM BUKIT HANTOE

SILAU RIVER AND CENTRAL HOSPITAL

Problems Tire Adjusters Have to Deal With

By Charles Goss

The average automobilist today gets more and expects more for his money than was formerly the case, when tires cost twice as much as they do now. This makes the work of the tire mileage adjuster more and more difficult, for he has to be a student of human nature and a good diplomat as well as a tire expert.

A man brings in a tire for adjustment. After hearing the mileage claim and other information, the adjuster carefully examines the casing; then gives his price for a new tire. It is usually received with a storm of indignation. The adjuster has to " weather " this and proceed to explain his " whys " and " wherefores." He must be able to convince the customer that his decision is justified by facts.

If the customer is not convinced he will generally want to see the manager, but the final word usually rests with the adjuster, who has to satisfy both the customer and his employer.

Various methods are used in adjusting tires. Some concerns adjust on the list price, some do not.

When a tire is adjusted on the list price it means that the tire is adjusted on the price at which it was listed to be sold, regardless of discounts and the price at which it was actually sold. An example to make the matter clear: A tire is listed at $50 and sold at less with a guarantee of 5000 miles. The tire is brought in for adjustment after running 1000 miles. The adjuster, if the mileage claim is in accordance with his estimate of the mileage given by the tire, will offer the customer a new tire for $10, which is one-fifth of the list price and not of the price paid for it.

As is well known, a tire is hardly ever sold at list price. Some consumers, however, usually demand that the adjustments be made on the selling price. If the customer's business warrants it, the tire manufacturer will adjust on the selling price: which means that if a tire is listed for $50 and sells for $40 and is adjusted for 1000 miles the customer will get a new tire for $8.

Another method of adusting is for the adjuster to take the tire and give it a casual examination, disregard mileage claim and guarantee and offer the consumer a tire for a certain amount.

Of these three methods of adjusting the best is, probably, the one where the adjustments are made on the selling price, because of its fairness.

A tire when brought in for adjustment is usually given a very rigid examination. Its tread and sidewalls are examined for cuts. The owner is asked numerous questions as to how the cuts were made. The answers bear on the final decision of the adjuster. The same is true with the mileage claim.

A good adjuster has learned by experience to know how much mileage a tire has been given by the condition of its tread and he can tell whether the tread has been damaged by chains, other anti-skid devices, brakes or otherwise. The inside of the tire is then examined for any internal injuries, for a tire may get a " bump " which does not leave any mark on the tread but will cause a rupture inside of the carcass.

The final examination is at the spot at which the customer claims the tire to be defective, or where the blow-out occurred. The adjuster then sums up and finally adjusts the tire, if in his opinion the claim is justified, on the customer's mileage claim. If not, he asks a higher price for the new tire or refuses an adjustment.

There are well-defined injuries to tires due to causes beyond the control of the manufacturer and, therefore, not subject to adjustment because they are not due to any defects in material or workmanship.

Where the tire casing is broken through one or more plies of fabric, due to bruise, or jar in striking some obstruction in the road, such as a stone, which, sometimes, will cause a new tire to blow-out at the bruise. This may not show any mark on the tread, but the innermost ply of fabric, which is smallest in circumference and therefore stands most of the strain, will sometimes break.

Then, at this point, the next ply of fabric will continually bend back and forth over the lips of the broken inner ply until it finally breaks also, and the same process continues until all the plies of fabric are broken and the tire's life ends in a blow-out. This type of blow-out is liable to occur at any time and may happen even when the car is standing still. It is repairable if not too serious.

A puncture is where a casing is pierced by a nail, wire, pin, screw or similar sharp object. Punctures can easily be repaired.

A jab is caused where the casing is cut and pierced through and through by a sharp object larger than a nail, such as a piece of tin, a sharp stone, a broken bottle. In a majority of cases a jab can be repaired by using a section patch.

A meshing is a condition of breaking of fabric or separating of strands of fabric generally caused by the severe bending back and forth of the tire's fabric when the car is being operated with insufficient air in the tires to properly carry the load. The effect of this " soft riding " on tire fabrics can be best illustrated by taking a piece of tin and bending it back and forth at the same point and noticing the results.

Beads open is where a rim cut has occurred and the fabric has separated from the bead. This is usually due to a rusty rim, to allowing the flap of a quick detachable tire to get between the bead and the rim and thus preventing the bead from sitting properly. It may also be due to improper placing of the bead on the rim, not getting the heel of the bead inside the rim flange, to a bent rim, to gouging with tire tool in fitting the tire.

A loose tread is caused by sand and water entering cuts, causing " sand blisters " and then spreading between the tread and the carcass. It may also be caused by skid chains and to riding on car tracks.

A spun case results from getting in snow or sand holes where lack of " traction " causes wheels to spin when power is applied. This will scar the tread and sometimes pull it from the carcass

Skidded case is a condition where the tire tread is worn down, due to set brakes, or undue application of brakes.

" Soft riding " will determine a condition of meshing and breaking of fabric. Running flat, the casing chafes through and through, sometimes in three of four separate places at splices in the plies of fabric. These " flat-ridden " casings are easily picked out by an experienced man, as the places where sides are chafed are those where the wheel has jumped over the wrinkle of rubber which runs ahead of the wheel in " soft-riding."

Thread worn to insert is due to considerable mileage or faulty alignment of wheels, causing the tire to slide or scrape along the road, producing a " buffing " action between the tread and the road. This " buffing " action can ruin a tire in very little mileage. Sometimes 100 or 200 miles are sufficient to make a tire unrepairable. Faulty alignment may be due to a bent axle, bent steering knuckle, poor or broken bearings, a hard blow in running over an obstacle in the road or against a curb stone.

A casing damage by coming into contact with some part of the car

while running is called " rim against machine."

Chafed sides are caused by running in car tracks, rutty roads, against curb stones, by running on soft tires.

Beads chafed are due to the same causes as " chafed sides " and also to faulty seating of bead rim.

Chafed tread is caused by skidding, " spun casing " wheel out of alignment, running in car tracks and tire chains.

Rim cut casings are caused by application of casing to a damaged or bent rim, to improper size of casing for rim, of a quick detachable clincher bead on a straight-side rim or vice versa and by improper fitting of casing on rim.

Broken fabric is due to a foreign object accidentally placed between the tube and the casing. Sometimes even a shipping-tag is enough to cause this condition. Tire tools have been known to have been left in the casing and not only injure the inner tube but to seriously injure the casing as well.

Skid-chains too tight chafe casings and in time cut through one or more plies of fabric, causing " chain cuts." Chains too loose will chafe a casing all over. Inside protectors, sometimes used to protect tubes from punctures, nine times out of ten do more damage than good by chafing several plies of the casing fabric and so injuring the tire.

Inner tube injuries are less complicated. A tube can be cut by the flap of the casing getting betweeen the tube and the casing, by pinching the tube between the rim and the tire bead, by getting caught under stay bolts of casing and by pulling away at the valve when running flat. Improper equalizing of tube and casing will ruin the former.

Rejuvenating Rubber

Rubber that has lost its elasticity may be rejuvenated, according to the *Journal de Pharmacie et de Chimie*, by immersing it for five minutes in a bath of glycerin mixed with 25 times its volume of distilled water and heated to 70 deg. C. and then drying it with filter paper.

Motorcycles in Hawaii

Registration records of the island of Oahu, Hawaiian Islands, on which the city of Honolulu is situated, show that 500 motorcycles are in commission there. With the exception of a few scattering machines, all are of American make.

With an average of four tires a year for each motorcycle, this would result in an annual demand for 2,000 such tires.

The Simplex Boltless Vulcanizer Door

Rubber manufacturers will readily appreciate the advantages offered by a vulcanizer door that will save the time and labor that is necessarily spent in closing and opening the type of bolted doors that have been so long in vogue in horizontal and vertical vulcanizers.

By the use of the Simplex patented boltless quick opening door which is being put on the market by The Biggs Boiler Works Co., Akron, Ohio, one of the hard and tedious operations in the vulcanizing room is done away with. The action of this new door and the principle on which it works is clearly shown in the accompanying illustration.

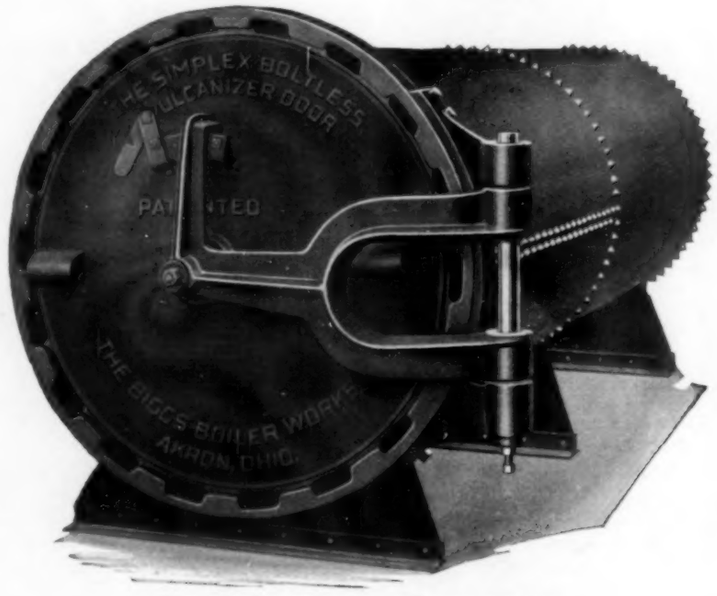
This new type door is made throughout of cast steel, and is extremely heavy in construction, all working parts being accurately machined. The door is provided with necessary adjustments to take care of any play that may develop after years of service, and is likewise equipped with the automatic locking feature.

The saving of time in opening and closing the Vulcanizer when equipped with this door can be more readily appreciated than described, for on the old type of bolted door at each opening and closing it has been necessary to operate from 21 to 25 large door bolts, whereas on this door there is not a bolt or nut to tighten, the door being opened and closed by turning approximately 8 inches. The time consumed in the operation is less than thirty seconds, and the tightness of the door both from the standpoint of safety and leakage does not depend upon manual operation, for when revolving the head, heavy cast steel lugs automatically engage and support the door against pressure.

Another important feature is the fact that the door is entirely self-contained; i. e., the door swings on its own hinges, and no overhead counterweight or chain block and trolley of any description is required.

The manufacturers of this door have also arranged to furnish same with a separate bolting ring, so that the new door can be attached to an old bolted vulcanizer door without removing the old casting from the shell, the old door bolts being used for bolting permanently in place the bolted flange for the new door.

The Biggs Boiler Works Co., pioneer manufacturers of Vulcanizers, fully guarantee these doors in every possible manner, and advise that over 95 per cent of the new vulcanizers they manufacture are being equipped with the Simplex door before leaving the factory.



THE SIMPLEX PATENTED BOLTLESS DOOR

This door can be furnished in all standard sizes from 24 inches to 72 inches in diameter and can be attached to horizontal or vertical vulcanizers.

The door is locked by revolving it slightly on its trunion by using an iron bar so as to bring its lugs under those of the shell ring, the internal pressure acting on the door. Its packings seal the vulcanizer.

This new type of door has been approved by the insurance companies and there are now some 400 of them in use. Wherever installed these doors are said to have given satisfaction.

Technical Course in Rubber Manufacture*

By H. E. Simmons, B.S., M.S.

Professor of Chemistry in the Municipal University of Akron

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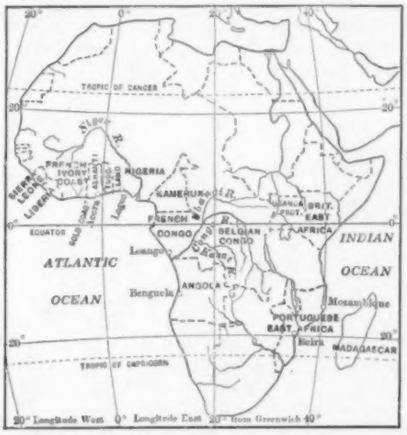
SECTION III

African Rubbers Including Those from Madagascar

The large part of the African rubber is of the order, *Apocynaceae*, of which there are many generae but three of these produce the majority of the rubber. These are *Funtumia, Landolphia,* and *Clitandra.* As a class of rubbers they are all more adhesive but less elastic than Para.

Of the *Funtumia* just one species is regarded as of commercial value and that is the *Funtumia elastica.* The other species seem to be very resinous and the natives are thought to use some of these to adulterate the better gums.

The rubber from *Funtumia elastica* when freshly coagulated has a peculiar sheen to the cut surface and for that reason is sometimes called "Lagos silk rubber." The main varieties of this rubber are what appear in the trade under the names of Gold Coast Lump, Ivory Coast Lump, Niger Niggers, Benin Lump, and some Congo and Cameroon.



The tree grows best in the province of Uganda and the tropical regions of Africa. The tree often attains to some size, in fact trees have been found having a circumference of eighty inches and a height of one hundred feet, a tree as large as the *Hevea.*

This rubber is now being obtained on the plantation scale by several companies in Uganda. As a plantation proposition it has three advantages over *Hevea.* First, it grows more rapidly; second, it yields a larger amount of latex for a small number of tappings; third, it is able to withstand a comparative long drought.

TAPPING FUNTUMIA TREE

The trees recover rather slowly from the wound made by tapping, however. Another great objection is the fact that the tree has so many branches. If planted only a few feet apart it will branch down into the lower regions of the trunk thus producing a dense bushy mass. A tree standing alone branches from the ground to the very top. Of course these branches interfere with tapping and it is found that when they are removed by pruning they heal very slowly and show bad scars for a long time.

Dr. Christy suggested the planting of these trees very close together and then thinning out later. This has helped a great deal.

The tapping of the *Funtumia* is done only two or three times a year, but it is tapped from the ground up to the first branches, generally a distance of fifteen to eighteen feet.

The tapping is of the herring-bone type but must be done very carefully and must also be very shallow. Dr. Christy also suggested that a channel be cut in the bark just deep enough to carry the latex and that the flow be started by means of a pricker.

This method gives about twice as much latex as the Schulz-im-Hofe method, which consists of vertical incisions about four inches apart and extending from the ground up to the branches. It has also been found that if the pricking be done slowly, by beginning at the bottom of the channel and taking several days to complete the real operation of tapping, that a better grade of latex is obtained and also a better yield.

This rubber was first thought to be one of the species *Kickxia* and from the Kew Bulletin of 1890 we notice the following statement:

"In September, Kew received from Captain Denton, C.M.G., two pieces of the trunk of the Lagos rubber tree, each about ten inches to a foot in diameter, scarred with the marks of the rubber gatherers. They were sent as the 'female' rubber tree, a name, we learn, that is locally applied to the *Kickxia africana,* Benth. It is thus distinguished from *Holarrhena africana,* quite a different plant, which is fancifully called the 'male' rubber tree. The later is also an *Apocynaceous* plant, but not known to yield any rubber.

"Should the new rubber *Kickxia* continue of commercial value, there is no doubt that it will eventually be possible to establish plantations, and thus make the industry a permanent one. It has always been seen that, owing to the climbing habit of the *Landolphia,* which have hitherto yielded African rubber, it was not practicable to cultivate them in regular plantations, as they require the support of other plants, and when once tapped, many years should have to elapse before they would be fit to yield another crop. With the *Kickxia* these practical difficulties disappear. According to Chalot, *Kickxia africana,* has been lately found in Gaboon. Specimens have been measured which were one meter in circumference and twelve to fifteen meters high. Each tree is estimated to yield annually without any injury."

SWAHILI CLIMBING METHOD

* This course commenced in the July 10, 1917, issue of THE RUBBER AGE, and will be complete in 27 issues.

Wright however, in his Cantor Lectures, 1907, points out the error of the Kew observations, for he says:

"*Funtumia*. This genus has lately become known as a source of rubber in Africa. It is still much confused with the genus *Kickxia*, and it is as well to again point out that Africa does not possess a single species of *Kickxia* of value as a rubber producing plant. The four species of *Kickxia* acknowledged by Stapf. are found only in Java, Celebes, Philippine Islands, and Borneo.

"The genus *Funtumia* is partly African and is represented by three species, *F. clastica*, Stapf., *F. africana*, Stapf., and *F. latifolia*, Stapf. The species of importance in Africa is *F. clastica*, Stapf. Its occurrence has been recorded in Liberia, Gold Coast, Ashanti, Lower

TAPPING A RUBBER VINE

Nigeria, Cameroons, Mundame, French Congo, Congo Free States, Uganda.

"The rubber from this species is very valuable, possessing when properly prepared from eighty to ninety per cent of caoutchouc. *Funtumia clastica* has been described as a tree with a cylindrical trunk which attains a height of one hundred feet; sometimes the tree occurs more abundantly in local areas, and out of an area of about fifty-four square miles as many as one million seven hundred and sixty trees have been estimated to occur."

The *Manihot Glaziovii* has been introduced into British Central Africa. In regard to the advisability of this project we find a diversity of opinion. Some thinking it will prove a fine plantation species and others raising great objections to it.

Before taking up the *Landolphias* it is necessary to define some of the terms which will be used in describing these rubbers.

BALL: The most common form of rubber coming from Africa. These balls vary in size from an inch or less, known as "Small ball," up to four inches or more in diameter, and known as "Large ball."

THIMBLES: The natives make by cutting the rubber up into small cubes, these are sometimes called "Nuts," as for example "Ambriz nuts."

LUMP: A very common form of these rubbers; simply large irregular pieces which often become all stuck together in transportation.

FLAKE: A form of lump which is very soft and is used in frictions.

PASTE: Practically the same as flake.

STRIPS: Made from lump rubber by cutting and pressing before it is sold.

BUTTONS are made in the same manner as strips with the exception that they are in small pieces.

BISCUITS and OYSTERS: The same as buttons.

NIGGERS and TWIST rubbers: A form of ball.

The *Landolphias* are all creepers or vines, yet attain considerable size. Often vines are found having a diamter of six inches. There are several species of importance, the *Landolphia Owariensis, Landolphia Hendelotii, Landolphia Thollonii, Landolphia Sphaerocarpa,* and the *Landolphia Pierrei.* The last two are found largely in Madagascar.

Among the rubber of this species we hear referred to in the trade are, Red and Black Kassai from the Congo region; Upper Congo balls and Equateur also from the Congo region; Virgin Sheets and Pinky from Madagascar; Sierra Leone Niggers, Twists, and Cake all come from the Sierra Leone and southern rivers; Conakry Niggers, Soudan Niggers and Twists, come from French West Africa; the Bassam Niggers and Twists likewise the Lahou Niggers come from the same territory; Liberia Lump, Hard Flake and Soft are produced in the Sierra Leone district; Acera is found on the Gold Coast and comes into the market graded as "Prime," "Seconds," "Thirds" and lower grades of "Flake and Paste"; Gaboon is probably the best known Flake; Lapori is a Congo rubber and is represented by Balls, Strips, and Cakes, some of the Balls being very clean and good; from Angola we obtain Loanda Thimbles, Niggers, and Prima, also Angola Niggers; there are several grades coming from the port of Mozambique in the form of Marbles, Balls, Spindles, and Sausage.

The *Clitandra* are widely distributed throughout Africa. They, too, are vines and flourish in great numbers on the Gold Coast and the Congo. Their rubber comes into the market largely as Lower Congo in the form of small cubes.

In the above we have not mentioned all of the varieties of rubber which Africa furnishes but we have tried to call attention to the representative classes of rubber now in use.

Concerning the coagulation of these African rubbers not a great deal is known, in fact we do not know how some of these are obtained by the natives. Therefore we shall describe methods in use with the different genera rather than upon the different species.

The latex from the *Funtumia* is coagulated by boiling and this is the method employed by the natives. They sometimes use a fusion from the leaves of *Banhinia reticulate* to facilitate the coagulation by heat. This rubber when properly prepared is of a high grade and possesses great strength; for that reason we have the methods used upon the plantations. From the Kew Bulletin we get an idea of the two most general ways:

"There are at present two kinds, namely, 'the cold process' and 'the heat process.' The cold process is chiefly practised by the Fanti men introduced from the Gold Coast. A cavity is excavated in the trunk of a fallen tree so as to form a cistern of the capacity necessary

COAGULATION OF LATEX AND PREPARING SHEETS

for holding the milk collected during several days. Into this the rubber gatherers pour the milk, after straining it, from day to day until it is quite full. It is then covered with palm leaves and left for twelve to fourteen days, and sometimes much longer, depending on the season, until most of the watery portions have either evaporated or sunk into the wood.

"After being kneaded and pressed together, the rubber thus obtained has a dark brownish color, with the inner portions of a slightly lighter color. Such rubber is known locally as 'silk rubber.'

"The heat process is the one generally adopted by the natives of Lagos. This is much simpler in working, as it disposes of all the milk collected at the close of each day. After being strained the milk is placed in a vessel and boiled. The rubber begins to coagulate almost directly the heat is applied and after the boiling is over is removed in a somewhat sticky condition owing to being burnt, and of a blackish color.

"It is pointed out that the heat process, though simpler, impairs the quality of the rubber, and is calculated to injure the industry. It is probable that if the heat process were somewhat modified the results would not be so injurious.

"An experiment was tried at the Botanic station to coagulate the milk by heat, but not applied directly to it. The result was much more satisfactory. The rubber came off a milky white color, and after being pressed it was clean and firm without being sticky.

"The history of this new rubber industry in Lagos is full of interest, and illustrates the wonderfully rich resources in the vast forests of West Africa. It shows also very clearly how largely these resources can be developed by judicious and intelligent action on the part of the government."

The methods used by the natives for coagulating the latex from vines are very diverse. The following methods are therefore used on both the *Landolphias* and the *Clitandras:*

It is said that the Red Kassai is obtained by smearing the latex over the body and the natural heat evaporates the water and the rubber is stripped off. The collector after tapping the vine collects the latex in his hands and smears it over his body, then proceeds to his hut where he removes the rubber in little bits and makes them into balls. Sometimes after tapping the hand is placed against the incision and the latex flows down the arm and after coagulation this is stripped off like a glove. By either one of these methods the earthy matter is absent but the rubbers are not absent from putrescible matter.

The Black Kassai is obtained by a process of boiling and smoking.

The "Ball" rubbers are obtained by bruising the vine really, and as the latex exudes, in some localities, they pour over this some salt solution by means of a shell. This coagulates the latex and they draw off a little lump of rubber and by keeping the bruised place moistened with the brine they form the rubber into a thread which is wound around and around the original lump as a nucleus.

Very often they will start five or six such places and then retreat a few steps and wind all of these threads into one ball of convenient size to hold in the hands. They make large balls of rubber in this same manner by taking the ball when it has become too large to wind in the hands, and lying on their backs, support it on the stomach and continue to wind it with the hands. The salt solution as we know is a good antiseptic and therefore the rubber does not as a rule develop the foul odors, but it does contain large amounts of occluded water and brine which are objectionable.

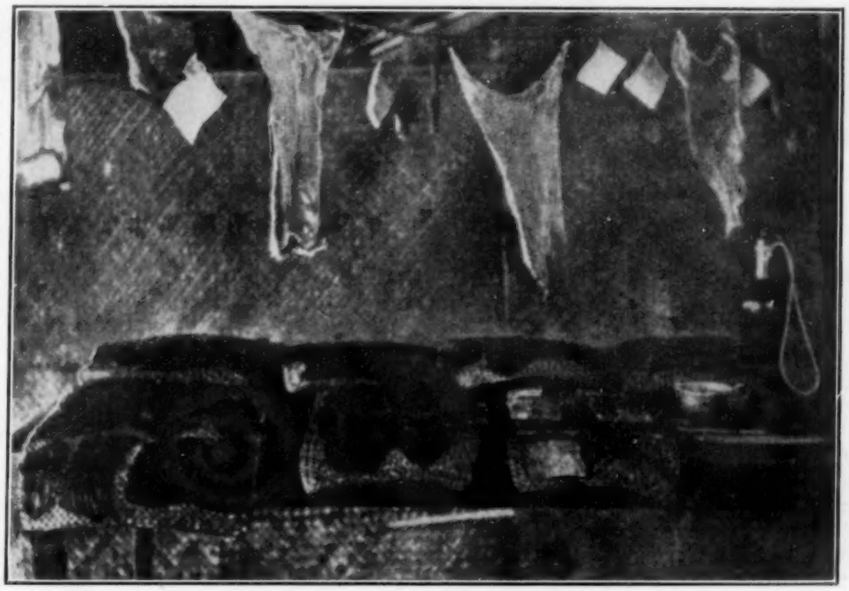
Perhaps the most common way of obtaining the latex from vines consists in cutting them down and bleeding or allowing the vine to dry out and then removing the rubber by a process of maceration.

The method mentioned above of cutting down the vines and creepers which produce rubber and then bleeding them is very wasteful for a large part always remains in the wood. To overcome this the Madagascar Rubber Company, Ltd., has put into operation the following method:

They cut down the vines and creepers and allow them to dry when the rubber which they contain rapidly coagulates. The dried material is now fed into a machine which grinds it to a pulp in the presence of water. After leaving this machine it goes through several machines called "agglomerators" which bring the particles of rubber together and at the same time wash away the wood fibers. This process has effected quite a saving in rubber.

Another method of coagulation by natural heat employed by the natives consists in tapping, after cleaning away the debris from the ground. They then allow the latex to collect in the sand which removes part of the water as a filter and the remainder is evaporated by the heat of the sun. The native returns later and gathers up the lump of rubber with all the foreign matter which adheres to it and then delivers it to the buyer. This way of doing is very much preferred by the natives for it requires about the least amount of labor of any method known to them.

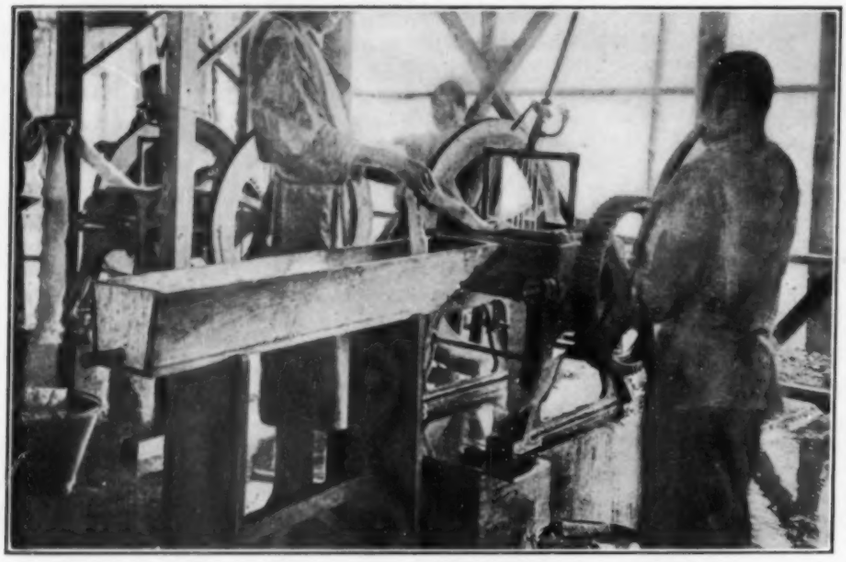
To this careless method we not only have the objection to the foreign matter which it naturally picks up and which the native purposely adds, but we find pockets of occluded latex containing nitrogenous matter which putrefies and not only injures the rubber but gives to it a nauseous smell. This method is used largely in West Africa and to some extent in the Congo and Angola.



DRYING THE SHEETS OF RUBBER

A method also used in the Congo consists in tapping the vine in several places, one below the other, and at the lowest one the native fixes a leaf in the form of a trough which will conduct the thin stream of latex out into a collecting receptacle. The leaf is generally made secure either by means of clay or partly coagulated rubber. The collecting receptacle has a hole in the bottom which is carefully corked up. When the latex has ceased to flow there is added to it four or five times its volume of water and it is allowed to stand. The rubber then comes to the top in the form of a semi solid cream.

The native then removes the cork from the orifice in the bottom of the container and draws off the lower



PREPARATION OF FUNTUMIA RUBBER

liquid. This contains the majority of the putrescible matter. The rubber is then removed to wooden containers where it is exposed to the air for some time, depending upon its condition, which the native judges from its appearance, it is then ready for kneading. If it gets too hard for this it is cut up into small parts and is sold as "thimbles."

This method is open to the same criticism as the others; namely, the putrescible matter is enclosed in pockets where it decomposes and produces a sickening smell.

The process of using potassium alum is in vogue in Africa in just about the same manner as was described in the last section of the course, dealing with the rubber from South America.

Citric acid has been used with the latex from the *Landolphias* but it has been completely replaced by sulphuric acid in Madagascar. Lime juice has also been used in a few localities.

These all have the same objection that they coagulate too rapidly and thus enclose some of the latex.

In the way of a sketch of the properties of these African rubbers we would say that Gold Coast Lump, from which Strips and Buttons are made is a very good grade of rubber. The Flake, however, is generally wet and has a bad odor. Ivory Coast is also a good rubber. Niger Niggers at first were very poor, suffering a loss as high as forty to fifty per cent upon washing. But they are coming into better repute at present.

Benin is generally very dirty and has a very bad smell. Congo contains bark and water, likewise pocketed latex. The Red Kassai is the best rubber from Congo possessing a high tensile strength. The black is not so good and does not come as clean.

The Sierra Leone comes in several grades containing bark and grit but low in moisture. Equateur is a much esteemed rubber. Bassam Niggers if in the form of small balls are good. Lahou Niggers are about the same. Liberia is wet and a more or less pasty rubber. Acera varieties are of a fair rank.

Gaboon is coagulated by an unknown process. It is very bulky but will take the form of the container in which it is shipped. It runs very high in moisture. The Lapori is a variable rubber as some of it runs in good clean condition and some contains fermented milk.

The Loanda is gradually disappearing and its place is taken by Angola Niggerheads. The Mozambique rubbers are sold largely in the Liverpool market where it is in demand. The Pinky from Madagascar is a very good rubber but due to the reckless methods of obtaining it is liable to become extinct.

From the following table showing the loss in washing one may obtain an idea of the relative values of these African rubbers.

Red and Black Kassai and Equateur, 6 to 12 per cent; African Niggers (Soudan, Conakry, Sierra Leona, Niger), 15 to 40 per cent; Madagascar Pinky, 18 to 20 per cent; Madagascar Niggers, 40 to 50 per cent.

The Demand for Rubber Goods in Greece

By George P. Waller, Jr.

American Vice-Consul, Athens, Greece

There is very little demand in Greece for transmission and conveyor belting. Leather belting and balata and camel's-hair belting in widths of 3 to 30 centimeters (centimeter = 0.3937 inch) and in rolls 120 to 130 meters (meter = 3.28 feet) long are much used. In normal times the imports of such articles into Greece are thought to amount to $25,000 per annum. Small quantities of pressure packing of asbestos fabric and other compounds are imported in normal times.

For rubber hose there is a large demand. The following kinds of hose are popular: (*a*) Water-pure black rubber hose, 2 and 3 ply, ranging from ⅜-inch to 1½ inches interior diameter, for light duty. (*b*) The same dimensions, but for heavy duty in foundries, marine, and railways service. (*c*) Rubber hose with wire covering in 15 to 25 millimeters interior diameter. (*d*) Cotton rubber-lined hose in sizes of ½, 1, and ¾ inch. (*e*) Unlined linen hose of 40 to 140 millimeters diameter. (*f*) Suction hose with plain surface and also with spiral wire inside, in 12, 15, 18, 20, 23, 25, and 30 millimeters diameter.

Of the types of hose that are enumerated, it is estimated that a quantity valued at 200,000 francs ($38,600) is imported each year in normal times.

For spraying the vineyards in the wine-growing districts with a solution of copper sulphate a special rubber discharge hose with a disk was formerly supplied by European factories. These are now out of the market.

The qualities of sheet-rubber packing principally used here are the cheaper grades, 1 to 5 millimeters thick, 2 and 3 ply, in rolls of 10 to 15 square meters. Pure rubber sheets or valve rubber in thicknesses up to and including one-fourth inch and in sheets of 100 square centimeters are sold. It is thought that perhaps $15,000 worth of the last two mentioned products are imported yearly. Three-fourths of all these articles before the war were supplied by Germany and Austria, and the remainder came from France and England. Dimensions are given largely in metric units without their equivalent in inches.

The United States hitherto has supplied only a small share of the products mentioned, but with the two Central Empires effectually cut off from other markets, American manufacturers of good wares in rubber and kindred products, by means of a carefully planned campaign should be able to do well in this market.

Emphasis should be placed upon the importance of having a commission agent here, fully trusted and familiar with all the local needs and customs, and most important of all, familiar with the language. It is exceedingly difficult to build up a permanent market by mail, and an agent fully accredited with exclusive territory is almost indispensable.

No duty on mechanical rubber goods is prescribed by the Greek tariff. The duty on automobile tires and inner tubes is $0.0103 per pound.

Perlman Removes Headquarters

The head offices of the Perlman Rim Corp., heretofore maintained in New York City, are now located at the concern's factory in Jackson, Mich. The change made will place the new president of the company, Clarence M. Day, in close touch with the manufacturing conducted at Jackson.

PRESIDENT
LESTER D. GARDNER

THE RUBBER AGE

EDITOR
HERBERT M. WILLIAMS

Vol. I | August 10, 1917 | No. 10

LATE in March, the Rubber Association, at the request of the Americanization Committee of the United States Chamber of Commerce, sent to rubber manufacturers a series of questions bearing on the Americanization of factory help. The summary that has been prepared from the replies received from 78 factories brings out some most interesting facts.

Fifty-two of these concerns report that 29 per cent or 30,003 of their workmen are foreign born and the striking feature is brought out that 15 per cent of these foreign born employees cannot understand English well enough to comprehend the simplest orders. This condition is most noticeable in the larger plants. One factory in which 7,500 foreign born workmen are employed makes the report that 53 per cent of these cannot take orders in English and another with 3,000 foreign born employees states that 75 per cent of these workmen are unable to understand our language.

Of the foreign born employees in 45 plants, 27.3 per cent of the foreign born workmen have been naturalized. The general desire to become citizens is shown by the fact that in 35 plants 71 per cent have stated that they desire to take up American citizenship, while in 17 other plants every one of the foreign workmen has expressed the same wish.

It is interesting to note that 17 of the rubber factories are assisting their employees to learn English in some way or other. Two factories are cooperating with night schools and 14 have adjusted working hours so as to make school attendance possible.

Supplementing its report the committee has issued suggestions concerning activities in rubber factories. It urges that a complete and coordinated plan of Americanization work be instituted under the supervision of a trained director. Frequent conferences between superintendents and foremen are desirable to create a better understanding of existing problems.

Emphasis is brought to bear on the necessity of having a centralized employment department, as this is deemed to be an important part of an organization and one that should not be slighted. This department should be under the direction of a responsible executive who should have full charge of *personnel* work and all matters such as the engaging, transferring, promoting, dismissing and laying off of employees.

He should carefully watch the physical conditions affecting the comfort of employees as well as the social needs of the men inside and outside the plant and should bear in mind that good living conditions tend toward promoting efficiency in the factory and create a desire for steady employment.

The employment department should also be the clearing house for grievances and complaints which should be heard and tactfully adjusted. Promotions should be based upon production efficiency and regularity, and a policy of promotions from within the plant should be announced and encouraged.

It is important that records should show the number of men who were discharged and those who voluntarily leave together with the reasons. It is very desirable that all discharging of employees be done through the employment department and that all persons leaving a company's employ should be carefully interviewed so that cases of dissatisfaction can be determined and that proper adjustments and transfers to other departments can be intelligently made.

The suggestion that a nurse should be employed who speaks foreign languages is excellent. A tactful woman could properly follow up cases of absence and encourage employees to develop an American standard of living in their homes.

It is urged that every effort be made to bring the foreign employees into the plant organization so that they will be brought into contact with the American workers. This mixing has a strong influence in Americanization.

The providing of lunch rooms, reading rooms and rest rooms is a way which will help to mix the workmen and increase their working efficiency. An arrangement should be made to secure a definite cooperation between the factories and the public schools, or schools might be established in the factories to hold sessions before or after work hours.

Special classes should be provided for workmen desiring to become citizens where they would receive instruction in the principles of the American form of government.

It is thought to be exceedingly desirable to keep careful records of employees' home and living conditions, as bad homes tend to increase the labor turnover and to encourage the search for work in other communities. The stability of the labor supply which is so important in the rubber industry can be greatly enhanced by the providing of suitable homes. Wherever possible it is recommended that a conference of industrial leaders in each locality should be called at which the conditions and methods of Americanization work for the community and its industrial plans may be considered, as every plant is dependent upon the other with respect to the supply of labor. Efforts that will promote loyalty and stability will be well worth while.

Information Exchange

In this Department are printed inquiries of a technical or commercial nature that are received by THE RUBBER AGE. *Readers are invited to send helpful replies to the questions asked, so that they can be printed in this Department.*

Specific Gravity Factors

Inquiry from H. H., N. Y.—Will you be good enough to advise me as to the specific quantities of various ingredients on which your table of specific gravity factors as published in the June 11 issue of THE RUBBER AGE were based.

Reply from C. S. Redfield, Ajax Rubber Co., Trenton, N. J.:

Below is given a table covering the specific gravity and pounds per cu. ft. of the most important compounding ingredients. These have been found useful in compounding rubber and also in cost work.

Table of Specific Gravities of Compounding Materials

Material.	Sp. Gr.	Lbs. Cu. Ft.
Acetic acid	1.057	66.3
Acetone	.792	49.4
Alcohol, wood	.814	50.6
Alcohol	.800	50.0
Aluminum flake	2.56	160.4
Aniline oil	1.02	63.8
Animal charcoal	2.62	163.8
Antimony, golden	3.10	193.7
Asbestine	2.76	172.5
Asbestos	2.35	146.0
Balata resin	.94	58.8
Barytes	4.50	281.3
Beeswax	.91	56.9
Benzine	.72	45.0
Benzol	.88	55.0
Burgundy pitch	1.08	67.5
Black antimony	4.6	287.5
Black substitute	1.10	68.8
Black, vegetable	1.72	107.5
Blown oil	.90	56.3
Borax	1.71	106.9
Brewers' pitch	1.06	66.3
Brick	1.90	118.8
Carbon disulphide	1.27	79.4
Carbon tetrachloride	1.60	100.0
Carnauba wax	.995	62.3
Castor oil	.96	60.0
Chalk	2.9	181.3
Charcoal, animal	2.62	163.9
Charcoal	1.38	86.3
China clay	2.60	162.5
Chinese vermillion	8.12	507.5
Chloride of sulphur	1.7	106.2
Chrome green	3.72	232.5
Chrome yellow	3.7	231.2
Chromic oxide	5.0	312.5
Cinnabar	8.09	505.6
Clay	1.93	120.6
Colcothar	5.01	313.1
Common salt	2.17	135.6
Cork	.24	15.0
Corn oil	.83	51.9
Corn oil substitute	1.02	63.8
Corn starch	1.53	95.6
Cotton	1.18	73.8
Cotton seed oil	.93	58.1
Dextrine	1.04	65.0
Ether	.736	46.0
Flake graphite	2.26	141.3
Fossil flour	2.60	162.5
French chalk	2.0	125.0
Fuller's earth	2.0	125.0
Gasoline	.90	56.3
Glycerine	1.25	78.1
Golden antimony	3.10	193.8
Graphite	2.2	137.5
Gum arabic	1.45	90.6
Gypsum	2.17	135.6
Hydrocarbon M. R.	1.00	62.5
Indian red	4.46	278.8
Indian red, stand	5.30	331.3
Infusorial earth	1.66	103.7
Iron oxide	5.24	327.5
Isaprene	.682	42.5
Kerosene	.80	50.0
Lampblack	1.75	109.4
Lard oil	.92	57.3
Lead, red	8.80	550.0
Lime	2.41	150.6
Linseed oil, boiled	.93	58.1
Litharge	9.40	587.5
Lithopone	3.80	237.5
Magnesia carbonate	3.00	187.5
Magnesia calcined	3.17	191.1
Mica, ground	3.00	187.5
Mineral oil	.92	57.5
Naphthalene, flake	1.15	71.9
Nitrobenzine	.86	53.7
Ochre	5.00	312.5
Oleic acid	.891	55.6
Orange shellac	1.14	71.3
Palm oil	.922	57.5
Paraffin	.875	55.0
Paris white	2.76	172.5
Petroleum	.84	52.5
Plaster Paris	2.84	177.5
Pontianac	1.05	65.6
Pumice	2.36	147.5
Quartz	2.66	166.3
Rapeseed oil	.915	57.5
Red lead	8.80	550.0
Red oxide	5.24	327.5
Rosin	1.1	68.7
Rosin oil	.977	61.3
Rottenstone	1.98	123.8
Rubber	.92	57.5
Salt	2.13	133.1
Shellac, bleached	1.12	70.0
Shellac, orange	1.14	71.3
Silica	2.6	162.5
Soapstone	2.26	141.3
Spar	2.70	168.8
Spermacetti	.943	58.8
Starch, corn	1.53	95.6
Stearic acid	.843	52.6
Sublimed white lead	6.20	387.5
Substitute, black	1.10	68.8
Substitute, white rape	1.02	63.8
Sulphur	2.00	125.0
Sulphur chloride	1.7	106.2
Talc	2.00	125.0
Tallow	.93	58.1
Tar, hard	1.27	79.4
Tar, soft	1.18	73.8
Turpentine	.86	53.8
Vegetable black	1.72	107.5
Venetian red	4.9	306.3
Vermillion, Chinese	8.12	507.5
Vorite	.98	61.4
White lead	6.50	406.3
White lead, sublimed	6.20	387.5
Whiting	2.72	170.0
Yellow ochre	5.00	312.5
Zinc oxide	5.60	350.0

Rubber Stopples for Ammonia Bottles

Inquiry from M. & R., New York.—Kindly give us the names of manufacturers of rubber stopples for use in ammonia bottles.

Skiver Wanted

Inquiry from C. V. C., Indiana.—We are in the market for a machine to skive down the edge of inner shoe and carcass reliners.

Special Brush Handles

Inquiry from G. W. D. L., Pa.—I am in the market for a quantity of special brush handles and would like to find out who makes the handles such as are used on the Prophylactic tooth brushes as this material would answer my purposes. I understand it is a rubber composition. Have you any information?

Recent Rubber Trade Enlistments for War Service

Apsley Rubber Co.

Ralph P. Hopkins, 5th Mass. Inf. N. G.
William G. Tenney, 5th Mass. Inf. N. G.
Warren Leary, Co. M, 5th Mass. Inf. N. G.
Michael Sullivan, Co M, 5th Mass. Inf. N. G.
Edward Thomas, Co. M, 5th Mass. Inf. N. G.
Harry E. Hadlock, Co. M, 5th Mass. Inf. N. G.
Edwin J. Hadlock, Co. M, 5th Mass. Inf. N. G.
J. Raymond Hogan, Co. M, 5th Mass. Inf. N. G.
Paul Jones, Co. M, 5th Mass Inf. N. G.
Joseph Kevit, Co. M, 5th Mass. Inf. N. G.
Harold Matthews, Co. M, 5th Mass. Inf. N. G.
Frank McCarthy, Co. M, 5th Inf. N. G.
Stephen MacLellan, Co. M, 5th Mass. Inf. N. G.
Edwin F. Beavis, Co. M, 5th Mass. Inf. N. G.
Emil Dupont, Co. M 5th Mass. Inf. N. G.
Charles Baggs, F. Co., 6th Mass. Inf., N. G.
Cecil Benway, L. Co., 1st Vermont Inf. N. G.
Phillip Bishop, 12th Co., R. I. C. A. C.
Harold Claflin, American Ambulance Corp.
Thomas Flannagan, F. Co., 6th Mass. Inf. N. G.
Jesse A. Gates, Navy.
Fred L. Parchert, American Ambulance Corps.
Wallace Rixford, L. Co., 1st Vermont Inf., N. G.
William Storey, Navy.

Bishop Gutta-Percha Co.

John Pfingst, 47th Regiment, N. G. N. Y.
Chester Prowdman, Navy.
George Jolly, Navy.
Edgar Fessender, Navy.
Charles Haney, Navy.
Michael Latonne, Navy.

Essex Rubber Co.

Gustave Fischer, Aviation Corps.
Alex. Ryan, Marine Corps.
Edward Blydenberg, Navy Department.
Elmer Cross, Field Artillery.
George T. Oakley, Coast Patrol.
John Simcock, Navy Department.
Frank Backes, Army Hospital Corps.

Hodgman Rubber Co.

Reed, Joseph, Navy.
Jozzi, Frank, Army.
Rupert, Clarence, Army.
Grogan, Joseph, Navy.
Beer, E. G., Plattsburg Camp.
Semenza, Thos., Army.
Salemme, Vincent, Army.
Addinizio, Louis, Army.
Harrigan, T. J., Navy.
Sergeant, Charles, Navy.
Florri, Romeo, Army.
Milik, Jerome, Army.
F. H. Giffing, Naval Reserve Corps.
Jocco, Frank, Army.
Rivellini, G., Army.
De Martini, E., Army.
Sacchi, G., Army.
Sartin, J., Army.
Nusso, S., Navy.

Hood Rubber Co.

K. Ohannesian, Army.
S. Najorian, Army.
J. Trischetta, Navy.
C. Hurin, Army.
H. Doyle, Army.
T. McGrath, Marine
A. Hall, Army.
C. Nerchant, Navy.
J. Dranjimetriku, Foreign Service
H. Sahogoni, Foreign Service.
H. Hohannesian, Foreign Service.
J. McDonald, Foreign Service.
H. Markarian, Foreign Service.
D. Zakarian, Foreign Service.
Clayton H. Brew, Army.
Geo. Donnelly, Navy.
Wm. Green, Navy.
Howard Lalty, Army.
W. J. Skotlowe, Army.
John Sullivan, Militia.
John W. Wilkes, Foreign Service.
Murdock Campbell, Foreign Service.
A. La Croix, Navy.
Warren Albee, Navy.
Wm. Haggerty, Navy.
Paul Gormley, Foreign Service.
Frank Dairs, Army.
Patrick Kiernan, Army.
Francis Waldron, Foreign Service.
Charles Makonski, Army.
Jas. Sullivan, National Guard, Mass.
Roland Preble, Army.
Wm. P. O'Halloran, National Guard, Mass.
Lawrence W. Wyatt, Army.
Thos. D. Swift, Army.
Dale H. Fulmer, Army.
Giuseppe Santono, Army.
Harold Jardine, Cavalry.
Fenis Finnich, Army.
Raymond Parker, Cavalry.
C. J. Beaudet, Hospital Corps.
William Quinimo, Army.
William S. Bradford, National Guard, Mass.
John W. Wilkes, National Guard, Mass.
Lawrence M. Wyatt, National Guard, Mass.
S. Sanford, Ambulance Corps.

Katzenbach & Bullock Co.

George A. Yoerger, Naval Reserve Force.
J. S. Ackerman, Ambulance Corps, Sect. 21.

L. & M. Rubber Co.

Harry Deets, Marines, New York.
Earl Long, Navy, Great Lakes, Ill.
Wayne Higgins, Marines, Philadelphia.

Manhattan Rubber Mfg. Co.

E. D. Ingalls, 22nd Engineers, N. G. N. Y.

Manhattan Rubber Mfg. Co.

John Van Houten, National Guard, N. J.
A. T. Derron, National Guard, N. J.
R. A. Jackson, Natilonal Guard, N. J.
Wm. Scott, National Guard, N. J.
Wm. Handschul, National Guard, N. J.
John Czingili, National Guard, N. J.
John Bill, National Guard, N. J.
Wm. Reay, National Guard, N. J.
Richard Lullwitz, National Guard, N. J.
Henry Gatti, National Guard, N. J.
Richard M. Rush, National Guard, N. J.
Eugene Banker, National Guard, N. J.
John Hand, National Guard, N. J.
John Stromach, National Guard, N. J.
Dennis H. Keane, National Guard, N. J.
Louis Servat, National Guard, N. J.
Wm. Morris, National Guard, N. J.
Harold Moseley, National Guard, N. J.
Jos. Libak, National Guard, N. J.
Steve Pristash, National Guard, N. J.
Timothy McNeill, National Guard, N. J.
John Devlin, National Guard, N. J.
Irving Mandeville, National Guard, N. J.
Albert Miller, National Guard, N. J.
John Hootnik, National Guard, N. J.
Anthony Dennis, Jr., National Guard, N. J.
Geo. Jones, National Guard, N. J.
John Borach, National Guard, N. J.
Stanley Gagiansky, National Guard, N. J.
Louis Raymon, National Guard, N. J.
Albert Whitelaw, National Guard, N. J.
H. G. Wotherspoon, Quartermaster.
Howard A. Herty, Quartermaster.

Midland Tire & Rubber Co.

Fred Ralph, Army
Archie Clark, Army.
Merle Dunbar, Army.

Miller Rubber Co.

John F. Babbit, Army.
George Bruner, Army.
John Rogers, Army.
Emmett Hickman, Army.
Paul Pierce, Army.
Floyd Dietrick, Army.
C. H. Miller, Army.
Charles Meinhart, Army.
Walter Vaughn, Army.
Frank Doudua, Army.
Froud Wargo, Army.
Ray Straub, Army.
Theodore Colgate, Army.
F. W. Frankhauser, Army.
Otto C. Scheipan, Army.
Percy Reid, Army.
Geo. J. Bender, Army.
Charles Hoag, Army.
Elmer Spearing, Army.
I. C. Jump, Army.
Bixler Allen, Army.
Thomas A. Boulton, Army.
John Keimel, Army.
Lawrence Womer, Army.
Dan Krumerine, Army.
John Isler, Army.
John Boslooper, Army.
H. Zook, Army.
R. Dennis, Army.
Garrett Cleafont, Army.
Jack O'Brien, Army.
Arthur Possehl, Army.
Judge Layter, Army.
F. Backnee, Army.
John McManus, Army.
Frank Goddard, Army.
Ben Favener, Army.
Walter Holder, Army.
Alonzo Burk, Army.
Harvey Welton, Army.
Herbert Cook, Army.
Harvey Seedle, Army.
Chas. Harmen, Army.
James Burris, Army.
Stephen Sophis, Army.
E. C. Crawford, Army.
H. J. Gewinner, Army.

Mishawaka Woolen Mfg. Co.

Ray Warniers, Army.
Chas. Smith, Army.
S. Quick, Army.
A. Singer, Army.
F. Claeys, Army.
C. Clifford Casper, Army.
Geo. Hopper, Army.
W. Atkinson, Army.
A. Sheteron, Army.
V. Storms, Army.
M. Bekaert, Army.
H. Brundage, Army.
N. Goodwin, Army.
E. Allison, Army.
C. Edsall, Army.
M. Stanard, Army.
C. Foster, Army.
O. Goossens, Army.
C. Auwenroyge, Army.
J. DeRuppe, Army.
E. O. Bryant, Army.
F. Maes, Army.
H. Suisher, Army.
A. Willard, Army.
W. Koczpinski, Army.
H. Gunnett, Army.
H. Williams, Army.
L. Holderman, Army.
C. Rice, Army.
C. Lynn, Army.
H. Jones, Army.
F. Stebbins, Army.
John Schmidt, Army.
John McNeill, Army.
P. DeGroote, Army.
Rosco Warren, Army.
Joe Van de Putte, Army.
Julius Dutoe, Army.
Bazill Lerne, Army.
Frank Decker, Army.
Lawrence Bultnick, Army.
C. Verstraete, Army.
Fred Bumiller, Army.
H. Larnelle, Army.
F. Frump, Army.
E. Stanley, Army.
L. Lorois, Army.
G. Holcomb, Army.
C. Roderick, Army.
A. Humboldt, Army.
E. Nye, Army.
D. Bushman, Army.
M. Lichtenberger, Army.
R. Pittman, Army.
L. Hanson, Army.
W. Green, Army.
J. Hendrickson, Army.
A. Roper, Army.
F. Gzwiak, Army.
Russel Hawkins, Army.
Harold E. Gardner, Army.
Hardy Stebbins, Army.
Benj. Fetters, Armv.
Arthur Shafer, Army.
Ralph J. Hutchinson, Army.
Glenn D. Babcock, Army.

National Tire & Rubber Co.

Robert Spaulding, Hospital Corps.
Ernest Massel, Co. D, 10th Regiment, Ohio.
Oscar Erickson, Co. D, 10th Regiment, Ohio.
Harry Barnhouse, Hospital Corps, Co. 13.
Charles Flowers, Hospital Corps, Co. 13.
Neil Crate, National Guard of Pa.
Leroy Dodge, National Guard of Pa.
Harry Garriague, Hospital Corp, Co. 13.

Packard Electric Co.

Clyde Green, Co. D, Ohio, N. G.
John Thornberg, Co. D, Ohio, N. G.

Pearce-Arrow Tire & Rubber Mfg. Co.

George Copople, Army.
John Kennedy, Army.

Porter Rubber Co.

Oscar Maxetta, Batt. E, 20th Reg., Field Artillery.

Portland Rubber Mills

Glenn Nourse, Army.
James Parker, Army.
Albert Hough, Army.
Eiler Erickson, Army.
Loren Sturgeon, Army.
Christian Zents, Army.
Paul Reese, Army.
G. C. Spokesfield, Army.

Rubber Insulated Metals Corp.

James Joyce, Navy.
Arthur Robinson, Navy.
Arthur John Morris, Navy.

Rubber Regenerating Co.

E. C. Thornton, Navy.
V. Talafero, Navy.
Perry Gnevecki, Navy.
A. Frase, Navy.
Lloyd West, Navy.
S. Davis, Navy.
F. Fifer, Navy.
M. Zimmerman, Navy.
R. Beyer, Navy.
F. Barrett, Navy.
R. Stiver, Navy.
C. Boyles, Navy.
Cullers, Navy.
C. Miars, Navy.
A. Clark, Navy.
B. Davis, Navy.
H. Young, Navy.
A. Hunt, Navy.
J. Wasser, Navy.
E. Hine, Navy.
R. Spencer, Navy.
Marvin Morris, Navy.
R. Robbins, Navy.
F. Godfrey, Navy.
S. H. Yoder, Navy.
Edw. Doneth, Navy.
P. P. Arthur, Navy.

Safety Insulated Wire & Cable Co.

E. P. Benjamin, Hospital Corps, 9th Base, N. G. N. Y.
H. A. Dearing, Machine Gun Co., 7th Regiment, N. G. N. Y.

Standard Four Tire Co.

D. H. Seeman, Marine Corps.
Jack Weiss, Electrical Engineer.
Lee Patterson, Iowa National Guard.
Hernie Myers, Iowa National Guard.
Ralph O'Blenness, Marine Corps.

Standard Tire & Rubber Mfg. Co.

Everett Swan, Army.
Carl Roberts, Army.
Clyde Glynn, Army.
John Wicker, Army.
Leo Scaglions, Army.
D. G. Hauscheer, Army.

Sterling Tire Corp.

A. T. Fleming, Squadron A, Troop B, N. G. N. Y.
Major J. M. Rector, Fourth N. J. Infantry.
Harry F. Warnke, Naval Reserve.
Harold Granger, Navy.
George Granger, Navy.
Virgil McManus, Navy.
Joseph Gonlair, Navy.
John Robertone, Navy.
Larry Oswald, Navy.
A. Nickolas, Army.
G. Henninger, Army.
Harry Strickland, Marine Corps.
George T. Booth, Base Hospital, Unit 23.
Donald B. Turner, Army.
Maurice L. Lee, Navy.
Earl Lascalleet, Maryland Naval Militia.
Fred Quackenbush, Naval Reserves, Newport.
John Dunn, Marines.
P. S. Jacobson, Marines.
Raymond Johnson, Army.
A. O. Whyte, Navy.
Earl D. Brooke, Navy.
W. C. Brenner, Army.

H. F. Taintor Co.

Starr Taintor, Lt. Comm., Brooklyn Navy Yard.
Herbert T. Spooner, Officers' Reserve Corps.

Thermoid Rubber Co.

Marvin Wood, Navy.
J. J. Quigley, Navy.
Philip Ashbrand, Navy.
Fred Schilling, Navy.
Charles Brown, Navy.
Harry Wissmann, Navy.
Raymond Koenig, Navy.
William Koons, Mosquito Fleet.
Charles Harding, Mosquito Fleet.
George Lavatsky, Army.
James Murphy, Army.
Ernest Hilton, Army.
Stanley Voorhees, Cavalry.
Lawrence Dolan, Cavalry.
Joseph Williams, National Guard, N. J.
William McNeal, National Guard, N. J.
Francis Apgar, National Guard, N. J.

U. S. Rubber Co.

W. H. Palmer, Veteran Corps of Artillery, N. Y.
H. J. Haefelein, Veteran Corps of Artillery, N. Y.
T. H. Young, Cavalry.
D. Gunn, Naval Reserve.
J. Huggard, Navy.
J. L. O'Toole, Infantry.
A. Gallagher, Navy.
J. Foltz, Ambulance Corps.
C. A. Bechtel, Ambulance Corps.
F. P. Riley, Quartermaster's Dept.
W. D. Jones, Quartermaster's Dept.
P. M. Brown, Harvard Regiment.
Herbert Lord, Naval Coast Reserve.
O. P. Friend, Naval Coast Reserve.
E. H. Wells, Plattsburg.
John Henkle, Quartermaster's Dept.
Irwin Hirst, Army.
E. Sheridan, Navy.
Joseph Clause, Marine Corps.
Robert Shuart, Navy.
Orson Parkenson, Navy.
Richard T. Robinson, 3rd Infantry.
L. G. Truesdell, 3rd Infantry.
J. F. Nelson, Naval Reserve Corps.
B. J. Lemon, Officers' Reserve Corps.
Homer Steele, Medical Reserve Corps.
L. P. Thomas, Jr., Officers' Training Corps.
Arthur Gray, Naval Reserve.
Henry Trowbridge, American Ambulance, France.
Edward W. Vaill, Officers' Reserve Corps.
J. B. L. Orme, Officers' Reserve Corps.
Louis G. Geils, New Jersey Field Artillery.
F. C. Batchellor, Officers' Reserve Corps.
B. J. Lemon, Quartermaster's Dept.
M G. Shepard, Engineers' Training Camp.
T. W. Janeway, Coast Artillery Corps.
D. A. Wilcox, Quartermaster's Dept.
Joseph F. Schneider, Plattsburg.
Edward R. Bartlett, Plattsburg.
L. Horak, Naval Reserve.

Wilson Tire & Rubber Co.

C. H. Cook, Navy.
M. R. Rodger, First Illinois Cavalry, I. N. G.
W. A. Rodger, First Illinois Cavalry, I. N. G.
G. J. Murphy, First Illinois Cavalry, I. N. G.
A. B. McCoy, Medical Corps.
Jerry Grady, Medical Corps.
Chas. A. Campbell, Medical Corps.

Rubber Companies Enlarging Facilities

Doss Rubber & Tube Co., Inc., to Equip Plant at Atlanta—Racine Starts Work on Three-Story Addition—Lee Moves General Offices from Conshohocken to New York

Doss to Build Atlanta Factory

Announcement has been made that the Doss Rubber & Tube Co., Inc., will build and equip a plant at Atlanta, Ga., for the manufacture of inner tubes and automobile tires. On August 28 more than two hundred stockholders of the company will meet and discuss plans for commencing on the construction at any early date.

The new factory, according to plans, will employ at the beginning between fifty and seventy-five men and women, but this number will later be increased to about two hundred and fifty. A new method of constructing an inner tube designed to meet the puncture menace, will be employed.

The tube is known as the "Doss Puncture-Closing Inner-Tube." It comprises a greater thickness of body than the ordinary inner tube, with certain uniform undulated corrugated surfaces which, when the tube is inflated, are forced out in a circumferential alignment with the fabric of the casing, placing the rubber of the tube under a constant state of compression, by which means all holes made by nails and other pointed objects are automatically closed, thereby preventing escape of air.

The Doss company is now operating a plant in Newark, N. J., for the manufacture of these tubes.

Racine Awards Contracts

The Racine Rubber Co., Racine, Wis., has awarded contracts and started work on a three-story addition, 100 by 700 ft., with a wing 50 by 60 ft., and a new power plant 50 by 75 ft. When these facilities are available, the output will be increased 25 to 35 per cent.

O'Neil Tire & Rubber Co. to Build

The O'Neil Tire & Rubber Co., of Akron, Ohio, will build a new plant, providing 20,000 sq. ft. of floor space.

American Rubber Plant Is Leased

The stockholders and directors of the American Rubber Mfg. Co. of New Jersey, Trenton, N. J., have leased their entire plant and business to The International Fibre Co., to be incorporated. Assemblyman A. D. Olphant of Trenton, and J. S. Gilpin will be stockholders and legal advisors in the new concern. The details of the plans of the new company were not made known, but it is said that the entire capacity of the mill for the coming five years has been taken over by a big Boston rubber company, and that the plant will not start extensive operations for at least a month, when employment will be given to a number of men.

Lee Offices to Be Moved to New York

General offices of the Lee Tire & Rubber Corp., at present located in the plant of Conshohocken, Pa., are to be moved to New York City. Such was the decision of the directors of the company at their meeting recently. All the branches of the company's executive system are to be included in the transfer, except, of course, the production department, which will remain at the factory. Sales, executive and accounting forces will be installed in New York City not later than October 1. At the same time a branch establishment will be opened which will be used as a service station for the New York and New England territory. The move will give the Lee offices a more central location, and at the same time release a large amount of factory space for production purposes. Various New York locations are now being considered to determine which is the proper one for the new headquarters establishment.

Massillon Rubber Co. to Enlarge Plant

The Massillon Rubber Co. of Massillon, Ohio, will enlarge its plant by the erection of a two story building 50 x 50 ft.

Financial Notes of the Rubber Industry

Goodrich Report Shows Earnings of $5,220,000 for Six Months—Rubber Products Co. and Swinehart Declare Dividend—Marathon Defers Action—Hood Increases Capital

Goodrich Shows $5,220,000 Earnings

The report of the B. F. Goodrich Rubber Company, for six months ended June 30, shows earnings of $5,200,000, compared with $4,800,000 in the like period of the preceding year, and with $4,000,000 in the first half of 1915.

The Goodrich directors, however, at their first quarterly meeting declared the usual quarterly dividend of 1 per cent on the common stock and the regular quarterly dividend of 1¾ per cent on the preferred.

Hood Increases Capital

The Hood Rubber Company in the first six months of 1917 increased gross sales more than $2,000,000, or more than 50 per cent and is compelled to increase its capital stock $1,750,000, $5,000,000 of it common.

Rubber Products Co. Declares Dividend

Special Akron Correspondence

A stock dividend of one share to each nine held by stockholders has been declared by the directors of the Rubber Products Co. of Barberton. The total was $50,000. It is planned to double the capital stock of this company to $1,000,000. Of the increase $150,000 will be sold to present stockholders at par and the balance held in the treasury of the corporation.

Swinehart Declares Dividend

The Swinehart Tire & Rubber Co., Akron, Ohio, declared a regular quarterly dividend of 1½ per cent on common stock in new preferred stock scrip instead of cash. Directors have decided to pay this dividend in stock rather than cash in order to conserve working capital.

Surplus for U. S. Rubber

United States Rubber Co., New York City, and its subsidiaries have a surplus of $905,395 for the quarter ended March 31 after payments of preferred dividends of $2,131,497.

Marathon Defers Dividend Action

The Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio, has deferred dividend action. The company states that business this year is better than last, but that additional working capital is needed. A meeting of the stockholders is called for August 30 to vote on an increase of the authorized capital stock from $1,000,000 to $1,500,000, of which $500,000 will be 7 per cent cumulative preferred. It is planned to offer $150,000 worth of stock in the near future.

Taking Nothing for Granted

EACH BALE OF WORN OUT TIRES RETURNED TO THE UNITED STATES FROM EUROPE IS CAREFULLY EXAMINED BY DOCK INSPECTORS WITH STRICT INSTRUCTIONS TO PREVENT THE SLIPPING IN OF NEW TIRES FOR OLD

Press Illustrated Service, Inc.

Report on War Revenue Bill

Senate Committee on Finance Recommends Several Changes in House Draft —Proposes Graduated Tax in Place of Original 5 Per Cent Tax on Gross Automobile and Tire Sales

WASHINGTON, D. C., Aug. 9. 1917.

The Senate Committee on Finance to which was referred the War Revenue Bill has rendered its report.

The committee devoted more than ten weeks to the consideration of the bill. It spent nearly a week in giving hearings, attended by representatives of nearly every interest affected by any of the provisions of the bill.

The amount to be raised almost entirely through special impositions upon business and property represents the largest taxation budget in our history.

It is estimated that about two-thirds of the additional revenue and about one-half of the total revenue from taxation for the fiscal year 1918 will come from the income and war profits taxes.

It is also estimated that the redraft of the war profits provisions of the bill will raise $362,000,000 in excess of that anticipated from those sources under the House bill.

In fixing the rates upon incomes and war profits the committee claims to have kept constantly in mind the fact that the amount of revenue derived would depend upon the prosperity and activity of business and that to impose taxes which would tend to discourage enterprise and dampen these activities would tend to defeat the legislative purposes by reducing the revenue expected from these basic sources.

The only changes made by the Finance Committee to the War Income Tax part of the House bill are as follows:

First—An increase in the corporation income tax of 2 per cent., making the total amount of this tax under the bill and existing law 6 per cent.

Second—An increase in the individual tax equivalent to 1 per cent. increase in the normal tax, the increase, however, to apply only to incomes in excess of $15,000 per annum.

Third—The elimination of the amendments made to this portion of the bill on the floor of the House which increases the additional surtax rate as reported by the Ways and Means Committee on incomes in excess of $40,000 by 25 per cent. and adding one new bracket imposing a rate of 45 per cent. of amounts in excess of $1,000,000.

Both the House bill and the present law impose the war profits tax upon partnerships as well as corporations, joint stock companies and associations and insurance companies, but neither includes individuals.

The Finance Committee finds no reason why individuals engaged in trade and business should not be subject to this tax as well as corporations and partnerships, and it recommends therefore that the bill be so amended as to include them.

The war profits tax of Great Britain has now reached a rate of 80 per cent, the rates in Canada are graduated from 25 per cent to 75 per cent and the New Zealand rate is 45 per cent.

The committee accordingly proposes the repeal of the existing war profits tax law, and the substitution for both it and the additional war profits tax passed by the House of a tax upon a basis similar to that followed by the European countries.

The committee proposes, instead of an excess profits tax, a war profits tax in general. It proposes to make the basis of the tax the difference between the profits of the pre-war period and the profits of a taxable year.

The Government has on record in connection with the existing income and corporation tax statements showing what were the actual net incomes of corporations during the years of the pre-war period; and the revenues from the excess profits of corporations will probably be about 80 per cent of the total revenue from excess profits.

The conclusion is reached that a graduated tax beginning with a rate of 12 per cent of war profits not in excess of 15 per cent of the pre-war profits and reaching at its highest a rate of 50 per cent of the amount by which such profits exceed 250 per cent of the pre-war profits would be far more equitable than a flat tax, just as a like graduated surtax on incomes is far more equitable than would be a flat surtax on incomes.

Title VI of the House bill imposes a tax of 5 per cent upon the gross sales of automobiles, automobile trucks, automobile wagons and motorcycles and automobile, motorcycle or bicycle tires sold by the manufacturer, producer or importer.

A tax of 5 per cent upon the gross sales under any circumstances would be a heavy tax. It is many times heavier than a tax at the same rate upon net profits. And it is to be considered that under the pending bill and under the present law these same manufacturers are subjected to high taxes upon their net profits and a heavy additional tax upon their excess profits.

A gross tax upon automobile manufacturers was the first considered, but upon a thorough investigation it was found that more than 40 per cent of the manufacturers were making very small profits. A few were making enormous profits.

A gross production tax in size sufficient to produce a substantial return would drive out of business the large majority of the automobile manufacturers. Largely for this reason such a tax was found to be impracticable.

After careful consideration the committee concluded that the automobile was a proper subject upon which to impose a war revenue tax, and it recommends as a substitute for the high gross sales tax, which might or might not be passed on to the purchaser, a moderate excise tax upon the owner of automobiles.

It therefore includes in the bill a graduated tax, as follows:

Upon motorcycles, $2.50; automobiles the original listed retail price of which is not over $500, $5; original listed retail price over $500 and not over $750, $7.50; original listed retail price over $750 and not over $1,000, $10, and for each further increase of $500 or fractional part thereof of original listed retail price an additional tax of $5.

The committee recommends the following amendments to schedule A of this title: First it recommends a parcel post tax of 1 cent for each 25 cents or fractional part thereof paid for the transportation of such package, weighing more than four ounces, to be collected by requiring an internal revenue stamp to be placed on such package before transporting.

It also recommends that a 1 cent stamp be required to be affixed to each check, draft certificate or deposit drawing no interest. A similar tax was imposed and successfully collected under the Spanish-American war revenue act.

H. C. Smith Appointed Branch Manager

H. C. Smith has been appointed Manager of the Kansas City branch of the Mason Tire & Rubber Co., the factory and general offices of which are located at Kent, Ohio.

Mr. Smith has been salesman with the Kansas City Branch of the company since this branch was established. He succeeds G. C. Van Veen, who has been transferred to Chicago, to open a new branch in that city.

Mr. Smith has had years of successful experience in the rubber business. He was for five years with The B. F. Goodrich Co., and has wide experience in dealing with the trade in the West and Southwest.

New President for Aero Cushion Tire Co.

B. A. Herrington has become president of the Aero Cushion Tire Co., San Jose, Cal. This company has gone under new management and has made several other changes. A. P. Marston has become vice-president; W. P. Wohlheter, secretary; E. L. Sherbondy, general manager and J. J. O'Shannessy, general agent. E. L. Sherbondy is the inventor of the Aero Cushion tire.

F. Haupt Is President of Ten Broeck

F. Haupt has been elected president of the Ten Broeck Tyre Co., Louisville, Ky., to succeed the late Harry L. Lewman. Mr. Haupt has been vice-president and was one of the organizers with Mr. Lewman. Winn Lewman has been elected general manager; W. N. Cox, treasurer, and Frank E. Trumper, secretary. All have been identified with the company for some time.

Goodyear Changes

The Goodyear Tire & Rubber Co., Akron, Ohio, has made the following changes:

W. A. Hazlett, formerly manager of the Detroit branch, has been appointed manager of the Detroit district.

H. G. Norris, formerly manager at Toledo, has been promoted to the management of the Detroit branch.

G. H. Hilbish has assumed charge of the Toledo branch, and is succeeded at Saginaw by W. D. McFarland, formerly a salesman in that territory.

F. W. Telford, who has been Goodyear manager at Des Moines, has been assigned to the manufacturers division at Detroit.

E. E. Greene, formerly assistant manager at Minneapolis, succeeds Mr. Telford at Des Moines.

Joins American Rubber & Tire Co.

The American Rubber & Tire Co., Akron, Ohio, announces that it has secured the services of H. Z. Tennant.

Clark to Be Assistant Superintendent

Arthur H. Clark, formerly of the Lycoming Rubber Co., Williamsport, Pa., will, on Aug. 18, take up the duties of assistant superintendent of the St. Louis plant of the Goodyear's Metallic Rubber Shoe Co.

News of the Rubber Metropolis

Coming of Winter May Bring Coal Shortage in Akron—Rubber Companies Prepare for Draft—Soldiers Will Be Given Rousing Send-Off—Kurtz Now District Manager for Amazon—Blimp Successful

Akron May Face Coal Famine

Special Akron Correspondence

That Akron rubber companies are more likely than ever to face serious coal shortages next winter was indicated by a letter just received by Mayor William Laub, of Akron, from Attorney General McGhee, of Columbus.

Mr. McGhee wrote, in answer to an inquiry from Mayor Laub regarding his authority to regulate coal prices, that neither the attorney general nor the mayor had any jurisdiction in the matter. All that can be done is to watch for evidence of an illegal combine among coal miners or local dealers. Some dealers are predicting $8-a-ton coal. One Akron dealer is doing his bit by offering coal at $5.50 a ton delivered.

Will Give Soldiers Big Send Off

Special Akron Correspondence

Rubber factory whistles which have roused many a man from his bed early in the morning or late at night to summon him to work will "blow" many former rubber employes out of town in a few weeks when Akron soldiers are called away to national mobilization camps.

As one of the features of the rousing Godspeed to be given the Rubber City men the factories have all agreed to blow their big sirens at a stated time, following the precedent set when Akron troops were called to the Spanish-American war.

The Akron Chamber of Commerce, with the backing of all Akron manufacturers, is raising a fund to give every local soldier a fitting token to carry into battle with him, a reminder of the regard the Rubber City holds for him.

On Sunday, August 12 a big racing meet has been planned to be held at the Summit County race track for the soldiers' benefit. Among other speed demons who are expected here to contest for the dangerous honors of the half-mile oval is Barney Oldfield. A sham battle will be staged also.

Portage Official Recovering

Special Akron Correspondence

B. J. Wildman, Portage Rubber Co. official, who was recently injured in an auto crash near San Francisco, is recovering from his injuries, according to a telegram just received here by his friends. C. R. Twynham, accountant for the company, and his wife, who were also injured in the smash-up, telegraphed that they are out of the hospital.

No Violations of Child Labor Law Found

Special Akron Correspondence

Federal agents who came to Akron to investigate the rumor that the child-labor act was being violated here declared before they left that they found no breaches of the law in any of the rubber factories.

Blimp Makes Successful Flight

Special Akron Correspondence

A Goodyear dirigible piloted by B. W. Bell, made a successful flight from Akron to Amherst, Ohio. The flight lasted three and one half hours. The landing was successful, and the big gas bag was shipped back to the Rubber City.

Kurtz Is Amazon District Manager

Frank W. Kurtz, well known tire man, has been appointed western district manager of the Amazon Rubber Co., Akron, Ohio.

Mr. Kurtz will maintain headquarters

in Chicago, and will direct the sale of Amazon anti-blowout tires in the central states.

L. D. Brown Is Made Goodrich Director

Special Akron Correspondence

L. D. Brown, formerly cashier of the First-Second National Bank, at Akron, which position he recently gave up to become associated with The B. F. Goodrich Co., has been made a Goodrich director to fill the place on the board made vacant by Guy E. Norwood. Mr. Norwood severed his connection with Goodrich when he left Akron to become president of the Republic Rubber Co. of Youngstown.

John M. Lytle Killed in Auto Accident

Special Akron Correspondence

John M. Lytle, of Wadsworth, Ohio, who was a Goodyear salesman in the West, and who returned home recently to enlist in a local militia company, was killed in an automobile near Akron, Sunday, August 5.

Picnics Called Off on Account of War

Special Akron Correspondence

As a war measure, the annual picnics of nearly all of the big Akron organizations have been called off for 1917.

It has been customary for the Akron rubber magnates to give all their men an annual, all-day picnic at one of the Northern Ohio watering places. This year, however, they have announced their intention of making up for the lost all-day affair by substituting in its place numerous summer diversions for Saturday afternoons which are weekly half-holidays.

The first organization to hold a picnic was the Goodrich Yellow Dogs who answered the call of the wild by going to Crystal Lake, north of the city for their outing. Races and amusements of all kinds were enjoyed.

Akron Factories Are Planning for Draft

Special Akron Correspondence

Akron rubber companies, realizing the seriousness of the draft question to them, have already begun to make their war plans. They are calculating just how many men they are going to lose and are figuring how many jobs may be turned over to women or old men. A heavy loss is expected in the plants because of the high physical standard of their employes, each company having examined all its employes before they were hired.

In the Goodrich plant it is estimated that between 10,000 and 15,000 men come under the selective service ruling. When these are finally weeded out by exemptions of various kinds the firm does not expect to see more than 500 men go.

War plans are also nearly complete at the Firestone Tire & Rubber Co. Between 6,000 and 7,000 men there are liable to service, it is figured. Of this number only 360 have received notices to report for examination, and as 200 of these have dependents they will have to be exempted.

Not more than 100 men were taken from the Miller Rubber Co. A large percentage of these will be exempted under the dependency clause.

The Goodyear Tire & Rubber Co. announced recently that it would ask exemption from draft for the heads of its departments on industrial grounds. It has ordered its foremen and superintendents to compile a list of men indispensable to the plants' efficient operation and the filling of Government war orders. For these exemption will be asked.

Akron Soldiers Will Not Lose Homes

Special Akron Correspondence

Akron men who are drafted before they have finished paying for new homes need have no worry, according to Secretary H. C. France of the Akron Real Estate Board. Their homes will be reserved intact for them until the war is over and they are again able to resume regular payments on them. In this announcement the real estate board is following the announcement of the Goodyear Tire & Rubber Co. to its employes that money which has been paid in on homes purchased by them from the company would be returned if the payee were drafted.

West Virginia Society Is Organized

Special Akron Correspondence

The West Virginia Society of Akron has been organized with a membership of over 5,000. Fully 25,000 West Virginians live here, it is estimated.

The Belt Line Handles More Freight

Special Akron Correspondence

Shipping statistics compiled by the Akron-Barberton Belt Line railroad indicate a healthy growth of manufacturing in the Match City, including several of the smaller rubber companies. Through this line nearly 62,000 cars of raw material entered Barberton in 1916. The first six months of 1917 show a total of 37,000 loaded cars. It is predicted that last year's business will be exceeded by 12,000 cars.

Bob Erskin in Officers' Training Camp

Special Akron Correspondence

Bob Erskin, of Goodrich, who carried off first honors in the mile run in the inter-rubber company races at Seiberling Park, Decoration Day, has gone to an officers' training camp at Austin, Texas. Mr. Erskin was graduated from a Texas university where he starred in athletics before coming to Akron.

Try to Secure Fair Freight Rates

Special Akron Correspondence

Headed by F. C. Van Cleeff, of The B. F. Goodrich Co., the Northwestern Ohio Rubber Shippers' Association has been organized. Its purpose is to secure a fair adjustment of railroad shipping rates both for raw rubber and for the finished product.

E. L. Tragesser, head of the Akron Traffic Association, also a Goodrich man, was chosen secretary of the association, and G. G. Kreitler, of the Goodyear Tire & Rubber Co., chairman of the executive committee.

Members of the new association complain that railroads have been allowing better rates to other manufacturers than to rubber men on shipments of goods of very similar nature. The rates have been from three to six times higher on rubber products, they say.

Air Raid on Akron

Special Akron Correspondence

At least one family in the neighborhood of the Rubber Metropolis had a realistic taste of what an air raid is when a Goodyear dirigible sailing over Mogadore, 1,000 feet in the air, recently dropped a "bomb" overboard that crashed through the roof of Chester Wise, Akron attorney.

The "bomb" was a large parachute which was cut loose when the big air cruiser developed engine trouble. The parachute with other aeronautical paraphernalia was tied in a tight bundle and hung over the car beneath the gas bag. When the motor stopped its weight overbalanced the basket threatening to dump the occupants out.

In the hasty choice between certain death and a lesser evil the bundle was cut loose. It crashed through the roof of the Wise dwelling while Mr. and Mrs. Wise were breakfasting. Their two children, who were asleep in a bedroom on the second floor escaped injury. The plaster and rafters in the study adjoining their chamber were loosened by the force of the blow. About $600 damage was done according to officials who investigated.

Mason Employes Plan Outing

Special Akron Correspondence

Employes of the Mason Tire & Rubber Co. have planned an outing at Lake Brady, near Akron, for August 14. Athletic events and a picnic dinner are on the program together with swimming exhibitions, a boxing carnival and a dance. The committee is composed of "Bud" Fisher, chairman; J. P. Matthews, Robert Clark, Charles Reitman.

Goodyear and Goodrich in Dual Meet

Special Akron Correspondence

Goodyear and Goodrich water-ploughers will compete at Silver Lake, Saturday, August 11, in one of the biggest aquatic meets of the season.

The events will comprise a 25-yard swim, 25-yard swim on back, fancy dive, distance plunge, under-water distance swim, and a quarter-mile swim for men.

For women a 50-yard swim, a 25-yard swim, breast stroke race and fancy diving event have been arranged.

Van Ness Buying Factory Equipment

Special Akron Correspondence

S. L. Van Ness, head of the General Engineering Co., of Akron, has been commissioned to buy necessary machinery for the new Western Tire Mfg. Co. of Texico, N. Mex.

Notes of Interest to the Rubber Trade

Goodyear Tire and Rubber Co. Publishes New and Complete Set of Tire Service Bulletins—Raybestos Brake Information in Booklet Form—New Curtain Fastener Appears

Goodyear Tire Service Bulletins

The publication of an entirely new and complete set of tire service bulletins is announced by The Goodyear Tire & Rubber Co., Akron, Ohio.

The new Goodyear bulletins are a departure from the custom that has prevailed in tire information literature, for instead of containing a mere enumeration of an array of "don'ts," they tell the motorist just what to "do" to cut down tire costs and get real service out of tires.

Naturally, the more common tire ills are treated individually and specifically, with full descriptions of just why and how they occur. But more emphasis is laid upon the remedy, and what is more practical, the means of prevention.

The bulletins come in a series of eleven and bear the following captions: "How to Increase Tire Mileage," "Proper Inflation Pays," "What to Do for Tread Cuts," "Fabric Breaks," "How to Avoid Scraped Treads," "Premature Tread Wear," "How to Use Chains," "How to Make Inner Tubes Last Longer," "Rim Cutting," "Chafed Side-Walls" and "The Way to Maximum Mileage."

Raybestos Data Book Helps Service

Both sales and service are made more valuable to the customer if the person who renders one or the other can talk with exact knowledge of his subject.

To put the dealer or salesman of brake or clutch facing in full possession of necessary facts, the Raybestos Co., Bridgeport, Conn., has compiled a data book comprising figures as to the sizes of the parts of all well-known cars, where the company's product can be used. Such figures as width, thickness and length of the piece of Raybestos to be used in the brakes or clutch of each car are tabulated for the convenience of the man who is called on to advise the car owner on those parts. The book is for distribution to all who may need it.

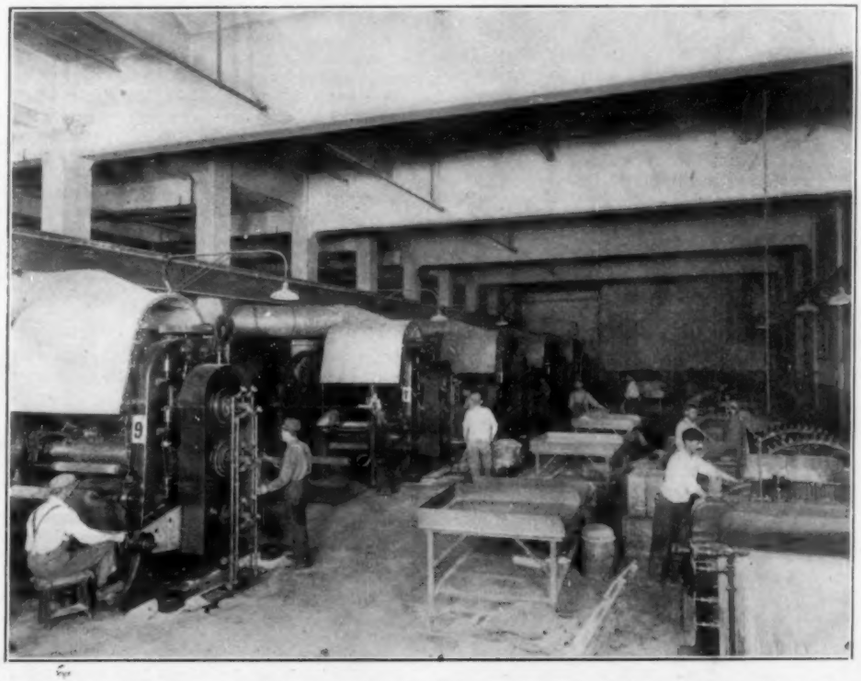
"Lift the Dot" Fastener

The last few years have witnessed the development of a type of automobile curtain fastener which is new in principle and unique in design and manner of operation. It is known as the "Lift the Dot" fastener.

Up to the time of its invention there were two forms of fasteners in general use. One was the ordinary turn-button fastener, and the other was the old-fashioned snap fastener, generally known as the ball and socket fastener. Both of these fasteners had certain advantages, also many disadvantages. The turn-button fastener was secure, but it was large, uncomely, and rattled badly whenever the pieces upon which it was used were moved. The snap fastener was neat and easy to operate, but it was not secure, and the security it did possess decreased greatly with use.

The "Lift the Dot" fastener operates in the following manner: on being snapped together it becomes securely locked on three of its four sides. It is unlocked by simply lifting on the fourth side. This side is indicated by a dot on the socket, from which it derives its name.

The "Lift the Dot" has found a use in many fields outside of automobile equipment. The fastener is used on several pieces of United States military equipment, including cartridge pockets and canteen covers. It is made by the Carr Fastener Co., 31 Ames street, Cambridge, Mass.



A Calender Room in the Factory of the Firestone Tire & Rubber Co., Akron, O., Showing Mills Breaking Down Rubber Stock and Large Three-Roll Calenders Frictioning it Into Fabric to Be Used in Tire Building

News of the Tire World

"Dural" Inner Tube Placed Upon Market—Royal Oak Tires Made for Automobiles—Dalton Increases Mileage Guarantee—Carlisle Cord Tire Co. Has New Tire

New Inner Tube on Market

"Dural" is the registered name of the hand-made laminated inner tube to be placed upon the market by the recently formed Dural Rubber Corporation of Flemington, N. J. Edgar H. Wilson, who has been identified with the rubber industry for several years, is president and general manager of the new firm. W. C. Ehrenfeld is vice-president, Caleb S. Green the treasurer, and G. F. Gingien the secretary. The directors include Newton A. K. Bugbee, comptroller of the state of New Jersey, J. E. Gill, J. G. Connor, and J. R. Hall.

E. H. Wilson

The Flemington plant, which was only recently put into operation, is claimed to be a model of its kind, embodying the daylight feature with modern tube making machinery. Three railroads are accessible to the factory doors.

A large portion of the Dural concern's immediate product will consist of inner tubes and rubber specialties for airplanes, and for this purpose special factory equipment is being rapidly brought to completion.

Oak Now Manufacturing Royal Oak Tires

Oak Tire & Rubber Co., Ltd., Toronto, Ont., is now manufacturing Royal Oak tires for automobiles.

Delion All-White Tread

The Delion Tire & Rubber Co., Trenton, N. J., is now producing tires with an all-white tread, a tone between an india tint and a light buff. The company has increased its tire mileage guarantee to 6,000 miles.

Snap-On Wheel Locks

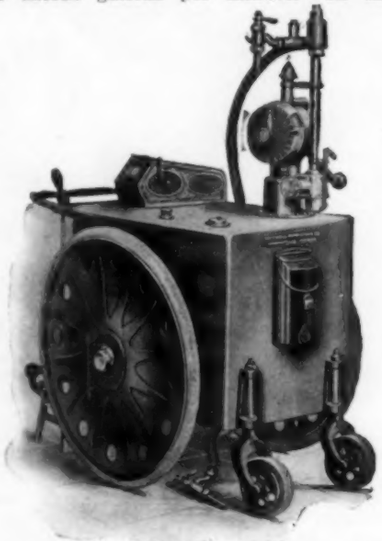
The numerous standardized devices for stopping automobile thefts all have their weakness as well as their good points. Thieves have long found means of overcoming the difficulty made for them by electric and gasoline cut-outs.

The Cairwald Mfg. Co., Philadelphia, Pa., prevents the moving of a car when its owner does not want it moved by the simple expedient of making impossible the turning of the front wheel. The device for accomplishing this is known as a Snap-On Lock; it is a triangular metal box having one side shaped to fit the tire, and it comes in sizes to accommodate the tires usually used. Placing this side against the tire, a shank extending out of the box fits over the felloe of the wheel and locks into the opposite side of the box. When in place, the Snap-On Log will allow the wheel to be turned until the device touches the ground, when it stops all further motion unless the car is jacked up. If power is applied to the rear wheels, the front one that has this lock on cannot be moved. The device is attractively finished in nickel and is locked in place by a Yale ratchet lock that is fitted with an alarm gong.

The Shotwell Portable Tank

A portable wheel tank that can be used to advantage in locations where a stationary curb outfit is not permitted and that will insure accurate gasoline measure is the claim made for the Shotwell Portable Tank. Correct measure, simple operation, and durability are the promises of the manufacturer.

The pump is operated by means of a sliding block and cross head, the method of operation permitting of a continuous crank motion in one direction without reversing the stroke. This feature is also claimed to allow a pumping capacity of fifteen gallons per minute. In the



pump is located a filter, an anti-syphoning hose-draining valve, and a gage registering up to twenty gallons and repeating. A gage in the top of the tank registers the contents and allows the checking of newly added supplies.

The tank itself is of boiler sheet steel and is of 55 gallons capacity. The main wheels are 30 inches in diameter, are equipped with roller bearings and rubber tires, and may be locked

The entire outfit is 64 inches high, 38 inches long and 29 inches wide. The tank is finished in red enamel, wheels and pump in black. The outfit is the product of the Shotwell Pump and Tank Co., Indianapolis, Ind.

Rie Nie Auto Patches

Tire troubles for which motorists are usually more or less prepared, have a way of developing beyond the capacity of ordinary repair measures at times. A cut may be too large to be covered, or for the edges to be held together by a standard sized patch, or the casing itself may have a big gash, requiring a strong material of some sort to mend it. For such emergencies especially, as well as to provide a durable repair patch for all punctures, the Durkee-Atwood Company, Minneapolis, Minn., has designed its Rie Nie Tire Patch, the feature of which is the insertion of a strip of vulcanized rubber between two strips of uncured rubber.

On the back, and pressed into one of the layers of the uncured rubber is a thickness of selected fabric, adding strength to the whole application.

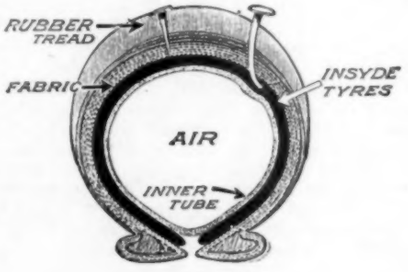
Carlisle Cord a New Tire

A new development in the tire field is the Carlisle cord tire, for the manufacture of which has been formed the recently incorporated Carlisle Cord Tire Co., Inc., New York City and Andover, Mass. The tire is the invention of F. B. Carlisle, who has long been connected with the research and development departments of one of the large rubber companies. New machines, said to be simple and ingenious, have been installed for the production of the Carlisle tires. These machines are now in operation at the factory in Andover.

The Carlisle tire is made in straight side, clincher, and quick detachable types without any variations in its construction to accommodate the different styles of rim sections. The carcass is made of single, unbroken strands of large diameter cotton cord, having a tensile strength of 235 pounds. It is so constructed that the cord has even tension at all points. Each cord is entirely surrounded by rubber, practically eliminating internal friction. This has an advantageous effect in the reduction of heating. The tread, one of the many patented features, is known as "Lightning Tread." It is a unique type, consisting of two angular depressions running around the tire closely resembling streaks of forked lightning. The tire, while having anti-skid features, rides like a smooth tire, the grip of the angular rubber channel combining with the vacuum to produce this result.

Insyde Tyres

"Insyde Tyres," designed to add from 1,000 to 5,000 miles to the life of a tire casing are a new product upon the market. The "Tyres" are made of a heavy tough fabric, vulcanized over tire molds to exactly fit the shoe. The outside is



coated with rubber which will in time vulcanize itself to the casing and so prevent slipping. The inside is treated in such a manner as to prevent it from adhering to the tube. The "tyre" is the product of the American Automobile Accessories Co., Cincinnati, Ohio.

A Guaranteed Inner Tube

Puncture proof inner tubes that are absolutely guaranteed to give 5,000 miles of service without a puncture—or a new tube free—is the product placed upon the market by the Toliver Tube and Tire Co., Denver, Colo. The manufacturers claim that this new inner tube, being made of high grade Amazon rubber, will not dry or harden. The tubes are inflated like other inner tubes with air forced into them through a valve.

American Rubber Patents

ISSUED JULY 24, 1917.

1,234,118—To Martin V. Batcheller, Gowrie, Iowa. Tire Armor.

1,234,141—To Daniel De Vine, Lost Nation, Iowa. Tire Tool.

1,234,142—To Frederick S. Dickinson, New York, N. Y. Pneumatic Tire.

1,234,143—To Frederick S. Dickinson, New York, N. Y. Pneumatic Tire.

1,234,144—To Noble C. Doss, Rome, Ga. Self-Healing Inner Tube.

1,234,155—To Walter R. Green, Chicago, Ill. Tire and Luggage Carrier.

1,234,193—To Augustus Mass., Cincinnati, Ohio, assignor to Joseph Stapleton. Detachable Tread for Pneumatic Tire.

1,234,245—To Ludwig Woiffgram, Brooklyn, N. Y. Rolling-Mill for Seamless Tubes.

1,234,330—To Christian Hamilton Gray, Essex, England. Press for Vulcanizing Molds.

1,234,331—To Rudolph B. Hartman, Milwaukee, Wis. Demountable Tread for Tires.

1,234,377—To Thomas Oye, Christiania, Norway. Treatment of Vulcanized Fibers.

1,235,028—To Charles A. Harsch, New York, N. Y., assignor to William H. Garrison, Brooklyn, N. Y. Fire-Detecting Wire.

1,235,052—To Raymond B. Price, New York, N. Y., assignor to Rubber Regenerating Company, a corporation of India. Manufacture of Tires.

1,235,062—To Frederick P. Schmidt, Cook, Neb. Automobile Pump.

1,235,080—To John T. Tooloose, Plattin, Mo. Tire-Tube Potector.

1,235,093—To Troy E. Auvil, Baltimore, Md. Wheel Tire.

1,235,117—To Marion Xerxes Corbin, Savannah, Ga. Vulcanizer.

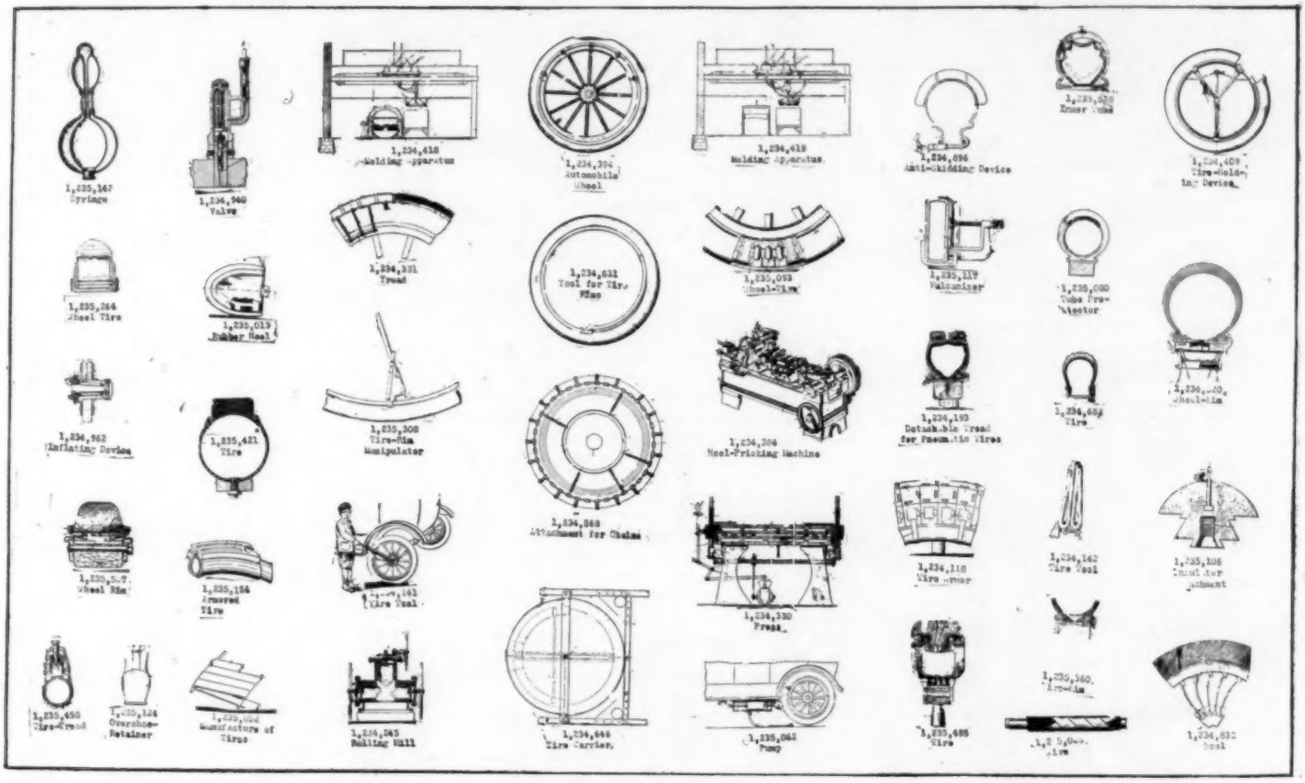
1,235,124—To Milton W. Dorn, Telford, Pa. Overshoe-Retainer.

1,235,142—To Sarkis A. Ichilian, Washington, D. C. Syringe.

1,235,156—To Charles E. Peabody, Brooks, Me. Armored Tire.

1,235,264—To Joseph Weinberg, Duluth, Minn. Wheel Tire.

1,235,360—To Samuel Pearl Michael, Frankfort, Indiana, assignor of fifty-one one-hundredths to Patrick A. Rice, Frankfort, Ind. Tire-Rim.



1,234,381—To Stanley J. Peachey, Heaton Mersey, near Manchester, England. Plastic Material and Process for Producing Same.

1,234,384—To Joseph H. Bope, Hamilton, Mass., assignor to United Shoe Machinery Co., Paterson, N. J. Heel-Pricking Machine.

1,234,394—To Harry Martin Schloss, New York, N. Y. Automobile Wheel.

1,234,409—To Chester E. Stefler, Alhambra, Cal. Tire-Holding Device.

1,234,418—To Harry J. Thompson, New York, N. Y. Molding Apparatus.

1,234,526—To Fernley H. Banbury, Ansonia, Conn., assignor to Birmingham Iron Foundry, Derby, Conn. Machine for Treating Rubber and other Heavy Plastic Material.

1,234,631—To Elba O. Collins, Chillicothe, Ohio. Operating Tool for Split Tire Rims.

1,234,646—To Karl Feilcke, Indianapolis, Ind. Spare-Tire Carrier.

1,234,682—To Ellis W. Mighell, Plano, Ill. Vehicle Tire.

PATENTS ISSUED JULY 31, 1917

1,234,820—To Frank H. Summerll, Los Angeles, Cal., assignor to Keystone Vehicle Parts Company,, Inc., New York, N. Y. Demountable Wheel-Rim.

1,234,821—To James A. Swinehart, St. Louis, Mo. Rubber Tire.

1,234,896—To Peter Hadnagy, Detroit, Mich. Antiskidding Device.

1,234,940—To Henry L. Shaffer, Washington, Iowa. Relief Valve for Pneumatic Tires.

1,235,013—To Mario Costa, East Wallingford, Conn. Rubber Heel.

1,235,421—To Sydney T. Bottenfield, Cleveland, Ohio, assignor to Bottenfield Tire Co., Cleveland, Ohio. Tire.

1,235,458—To Michael Edward Fox, R. E. Ryan and Claude Melnoth Sawyer, Winston-Salem, N. C. Tire-Tread.

1,235,485—To Ivan N. Keim, Mount Holly, N. J. Tire.

1,235,528—To C. L. Crow, Alexander City, Ala. Automatic Self-Healing Inner Tube for Pneumatic Tires.

"Balanced" Dental Plate Rubbers

After much investigation and effort the S. S. White Dental Manufacturing Co., Philadelphia, has worked out a "balanced" formula or method of making dental rubbers which is said to afford the greatest ease and facility in packing the sheet rubber cold or warm. Shrinkage is reduced to a minimum, and a dense, non-porous plate assured, that will take an extremely high polish.

The sulphur-rubber content is carefully calculated to carry enough rubber to provide maximum tensile strength with the minimum quantity of sulphur required for perfect vulcanization.

The plasticity and flowing qualities of these rubbers are such that gas paths, commonly called porosity, are eliminated.

Recent Incorporations

Pittsburgh Tire Manufacturing Co., Pittsburgh, Pa.; Capital, $1,000,000.

Berkshire Rubber Co. of N. Y.; Albany, N. Y.; $10,000; Incorporators, B. Wurts, T. D. McMurray and A. Wurts.

Nebraska Tire & Rubber Co., Omaha, Nebr.; Capital, $500,000; To manufacture automobile tires and accessories; Inorporators, G. E. Pieronnet, C. E. Niswonger, W. A. Graham, I. F. Baxter, and G. W. Toman.

Angola Tire & Rubber Co. of Buffalo, Buffalo, N. Y.; Capital, $1,000,000.

Miller Rubber Home & Land Co., Akron, Ohio: Capital, $100,000; To build homes for employes; incorporators, H. E. Jennings and W. Pfiefer.

Harvey Tire & Rubber Co., Portland, Me.; Capital, $1,000,000; Incorporators, G. S. Soule, A. B. Farnham, and P. B. Drew.

Hewitt Rubber Co. of Buffalo, N. Y. has increased its capital from $1,000,000 to $1,-500,000.

The Seneca Rubber Co. Buffalo, N. Y.: Capital, $50,000; To manufacture rubber products; Incorporators, H. T. Auerbach, H. A. Forbes, and L. B. Dietz.

The Legeim Rubber Co., Jersey City, N. J.; Capital, $25,000; To manufacture rubber goods; Incorporators, A. McMahon, C. B. Hermans, and F. Lasche.

Stearns Tire & Tube Co., Dubuque, Ia; Capital, $25,000; to deal in automobile tires and accessories; Incorporators: Adolph A. Schneiderhahn, G. T. Timmermann.

Akron Cord Tire Co., Akron, Ohio; Capital, $35,000; Incorporators: N. G. Witsaman, W. C. Washburn, J. Richard Stanley.

National Rubber Sales Co., Terre Haute, Ind.; Capital, $25,000; To buy, sell and repair automobile tires, etc.; Incorporators: Elmer S. White, D. R. Ulmer, E. M. White.

Tennessee Tire & Supply Co., Knoxville, Tenn.; Capital, $10,000; To sell gasoline and tires; Incorporators: Chas. W. Parker, A. C. Mahan, Lee M. Ross, W. L. Smith and J. J. Parker.

Erie Tire & Rubber Co., Wilmington, Del.; Capital, $10,000,000; To manufacture, buy, sell and deal in and with automobiles and supplies for same, druggists' supplies, including rubber goods, etc.; Incorporators: A. W. Pesey, E. G. Adams, H. Bonsall, all of Wilmington.

Goodyear Waterproof Co., New York; Capital, $5,000; To manufacture raincoats; Incorporators: Barney Kimmel, Abr. Newman and Alexander Weidman.

Old Hickory Tire Co., Dover, Del.; Capital, $500,000; To manufacture tires; Incorporators: C. H. Jones, W. I. Lofland and Geo. W. Morgan.

Market for Manufactured Rubber Goods

NEW YORK, August 10, 1917.

"Business as usual" in war times is an impossibility, judging from reports of conditions throughout the country where many incidents show that much "unusual business" is becoming "usual." Large organizations handling their lines through what they considered invulnerable systems have been forced to change their methods.

The general tendency is towards short terms, cash payments, limited contracts, and conservation of energy that was formerly wasted in pleasure. A prominent rubber man recently stated that it takes almost twice the capital to swing the same volume of business done prior to the war. This being the case it can easily be understood how the present tendency of curtailment of credits affects business. Many concerns are awakening to the fact that the aftermath of the war will be more dangerous in a business way than the war itself.

The constantly growing value of all raw materials and the increasing costs of production have naturally resulted in contraction in the use of many articles. The war-time earnings are not sufficient to offset the increased cost of everything and people have to stop buying many articles, even those heretofore considered as indispensable.

Buyers are hesitating, but of course this does not mean that business will come to a standstill, it only indicates that it will require stimulation if it is to proceed at anything near its speed of the past three years.

The change is being realized throughout the United States and most merchants are holding back, striving to keep their assets liquid so as to be able at all times to meet varying conditions of trade. Periods of fear and depression are to be expected but they are sure to be overcome just as they were in Europe where the test has been far more severe than it possibly can be in this country.

Business is not proceeding "as usual"; it is feeling the effects of the war, which it will have to overcome.

MECHANICAL GOODS

There is little new to say about the mechanical rubber goods market. It continues quiet but it is confident that there is greater likelihood of demand exceeding production than there is of the contrary being the case.

Prices will raise considerably when manufacturers begin to sell goods made from the materials they are now purchasing at unusual cost, and there is much uneasiness as to the supply of cotton duck. Unless the Government is told and shown that something must be done to enable the textile mills to do some work for the rubber factories, serious conditions are likely to develop in the mechanical goods branch of the rubber industry.

Outside of large quantities of gas masks, being made in Akron, little work has as yet been done on Government orders for rubber mechanical goods.

SOLES AND HEELS

There has been no change in conditions in the soles and heels branch of the rubber trade since our last report. Some manufacturers say they are behind on their orders, while others have considerable quantities of merchandise they would like to be able to move.

TIRES

The tire trade is naturally sensitive to the general tendency to curtail expenditures wherever possible. Though retail sales have slightly improved due to the summer weather, it is apparent that dealers have plenty of goods on hand and under contract.

Like all other merchants tire dealers are going ahead carefully with the result that, compared with the past three years, the tire trade is quiet and will probably remain so until this country has adjusted itself to war-time conditions.

There is still talk of further increases in tire prices which would be justified by the steadily growing costs of production. But persons in a good position to know do not believe tires will go any higher this season and in fact they do not anticipate a raise before June next year. The fact of the matter is that there are sound reasons for a rise in tire lists but general trade conditions are such that wise manufacturers do not wish to make any changes until they can plan ahead with some degree of certainty.

FOOTWEAR

Rubber footwear manufacturers are busy and some of them are still experiencing real difficulty in securing a sufficient number of operatives for their plants. With large Government orders to fill and the prospect of an even larger season than the last one rubber footwear factories have no fear of being idle.

DRUGGISTS' SUNDRIES

The opening of the druggists' sundries season is characterized by a spirit of "watchful waiting" among buyers.

Manufacturers would have good cause for uneasiness were it not for the hope of good Government orders and for the fact that the supply of the skilled labor required for many items of rubber sundries is growing scarcer rather than the contrary. All of the rubber industry is feeling the effects of war enlistments and of the National Army draft.

However, it seems that if they are to escape a dull season druggists' sundries manufacturers will have to adapt themselves to the new conditions brought about by our entry into the war.

The boys in the trenches will need many articles of rubber sundries; they will not know all the articles they need, a demand will have to be created and parents and relatives are sure to do all in their power to make their boy's life as comfortable as possible. Here is a great field for druggists' sundries.

The Fabric Market

NEW YORK, August 10, 1917.

The raw cotton continues to be subject to wild fluctuations. A rise at the New York Cotton Exchange on August 6 of 100 to 110 points was the striking feature of the past fortnight. It was due to the scarcity of contracts, a sharp demand for October, reports that the British government would provide more ocean freight room for cotton drought in certain parts of Texas, fears that parts of the Eastern belt may be getting too much rain and, finally, peace talk.

On Aug. 7, this sharp advance was lost and a small net decline was brought about by profit taking and other selling. On Aug. 8, reports that crops might be larger than expected caused a decline of $4.00 a bale.

The Government crop report published last week, placed the crop condition at 70.3 per cent. This was followed by a rush to cover, which sent October and December up to 25.30 and 24.90, respectively. But, aside from this covering movement, there appeared to be little demand and prices soon turned easier. Private advice regarding crop conditions is more favorable than was the Government report.

We are now on the verge of the most critical period for the cotton crop, and the market will doubtless continue to be extremely sensitive to weather news. There probably will be crop scares and the like to cause more sharp advances. It may be that the figures of the condition reports do not quite reflect on the surface the true state of the crop, and in this connection it is well to observe that the average depreciation during July is nearly four per cent, and that an unchanged condition points to a crop 600,000 bales larger than a month ago.

Yesterday the old story repeated itself; once more there were unfavorable weather reports and rumors of Japanese purchasing. The market closed with a net gain of from 25 to 30 points.

All points to what may be termed a "weather market" and it is probably not far from right to advise purchasing in moderate quantities.

	Closing.	
	Aug. 9, 1917.	Aug. 9, 1916.
August	27.40 bid.	14.00@14.02
September	26.32 bid.	14.08@14.10
October	26.07@26.10	14.14@14.15
November	25.90 bid.	14.22@14.24
December	25.86@25.89	14.36@14.37
January	25.84@25.86	14.43@14.44
March	25.95@25.98	14.55@14.56
May	26.08 bid.	14.69@14.71
July	26.32 bid.	14.75@14.77

EGYPTIAN COTTON

All reports show that the Egyptian crop will be abundant and of good quality.

There would be no apprehension as to the future of the supply of Egyptian cotton in this country were it not for the difficulties now being experienced in getting cotton out of Egypt and into this country. The Egyptians do not seem to be attracted by the handsome prices offered them for their product, and it is a problem to get across the water the small quantities of cotton that are being released. Several ships carrying cotton to this country have been sunk recently.

Mill men state frankly that if the rate of Egyptian arrivals does not increase materially before many weeks, a serious shortage of Egyptian staple will be felt in this country by the first of next year. Most mills are well covered on their requirements for this year, but nothing is on hand to keep going after the present stocks are exhausted.

SEA ISLAND

Advice from the Sea Island cotton belt is very favorable to the growing crop, and a fair yield appears to be certain. Of course there are two things to be remembered; first, that the crop has yet to pass through the August furnace, and second, that the scarcity of old cotton gives the bull a decided advantage temporarily.

No important damage has as yet been done by the boll-weevil. Cultivation has been thorough and has produced a healthy stalk.

There is a market feeling in raw cotton circles that Germany owns consider-

able cotton in this country, and there are fears that under the Trading with the Enemy Act these holdings will be sold out. This would probably have a considerable effect on prices, at least for the time being.

To what extent such a happening would affect Sea Island prices is subject for conjecture. Many do not believe there will be anything but increases in Sea Island values, due to the probable shortage of Egyptians.

YARNS

The demand for cotton yarns for the civilian trade continues to be very quiet with prices, in certain instances, showing a concession of cents per pound from the level at which spinners have been holding their products.

Local dealers state to-day that the yarn market is firmer, but there has as yet been little increase in the actual volume of business.

There are rumors of a curtailment in the production of cotton yarns, especially after Sept. 1, when the Federal Child Labor law goes into effect, for this will mean a reduction in labor hours.

Manufacturers working on Government orders, other than tent duck, appear to have their contracts well covered with yarns.

Wool and worsted yarns are in heavy demand among concerns making uniform clothes for the Government. The latter gives the manufacturers the option of supplying their own yarn or using that which it can offer them.

FABRICS

Cotton goods markets are firm and more active in fabrics other than those used by the rubber industry which, generally speaking, continue to be very quiet.

Work in the mills suffered much from the hot weather of last week, and outputs were only a small percentage of the total capacity. This may cause delays in deliveries of goods. It is believed in cotton and wool fabric circles that there is no possibility of values decreasing. The cost of raw materials will probably remain high; labor and overhead expenses can only be expected to increase. The Federal Child Labor law will go into effect Sept. 1, and undoubtedly will add to production costs.

The extent to which Government orders are now monopolizing spindles and looms is becoming a matter of serious concern in the textile mills affected. Many mill men say that if the Government does not release in the near future some of the looms it is now using, mills will not be able to supply urgent civilian needs.

TIRE FABRICS

Tire fabrics are quiet, but there is no evidence of any weakening in their prices on the contrary. The strength of this market is due chiefly to the fact that the mills are all well sold, considering their capacity to handle civilian orders which has been greatly reduced by the large number of looms turned over to Government work exclusively, also because much uncertainty exists as to the future supply of raw materials suitable for standard tire fabrics.

The large tire fabric mills are covered on their requirements up to the first of the year, but after that few are certain as to the kind of yarns they will have to use. They feel that they will have their hands full in filling the orders already in hand and, consequently, they are not anxious to augment their responsibilities by gathering orders.

Fearing a shortage of Egyptian cotton in this country, tire fabric people have been preparing for such an eventuality and conducting experiments with other staples. Tests have not yet covered a sufficient period to permit any final conclusions but, so far, fabrics that have been made of Peeler cotton, and mixtures of Peeler, Sea Island and Egyptians, and tested in tires, have given better service than was expected of them.

Tires built of fabrics woven from Peruvian, Bolivian, Brazilian and other South American cottons, are said to be giving excellent results.

Sea Island, of course, remains as the standard by which all cottons for tire fabrics are measured.

It will be remembered that it took Egyptian cotton a long time to establish itself alongside Sea Island and, though other staples have not been considered qualified for such a position, there are no reasons not to believe that there are little-known South American and other staples that are just as good as Egyptians for tire building.

HOSE AND BELTING FABRICS

Buying in mechanical fabrics is restricted to a narrow volume because rubber manufacturers are well covered and mill men cannot see at present how they are going to fill their contracts, consequently, are not anxious to sell. The enormous quantities of heavy duck required by the Government are occupying all of the mechanical duck looms in the country and hundreds of other looms besides. Recent Government purchases alone amount to 3,991,400 yards, and early contracts aggregated a much greater yardage.

The mechanical duck situation is likely to become very difficult unless the Government takes steps to reduce the pressure it is now placing on the capacity of this branch.

Large numbers of carpet looms are making heavy duck for the government, and it is reported that these looms have been found to be well suited for this work. Here may be a solution of the mechanical duck problem. By turning carpet looms over to this manufacture it may be possible to release sufficient regular duck looms to keep the rubber industry supplied with mechanical ducks, which it is not practical to make on carpet looms. Mechanical rubber goods, belting and hose, are necessities of war; carpets are not.

DRILLS, OSNABURGS AND SHEETINGS

The market for these cotton goods is firm and more active than it was two weeks ago. Civilian, as well as Government purchases are increasing. Sellers are now apparently getting as much business as they want, which was not precisely the case at the time of our last report.

Government contracts recently awarded aggregate more than 3,961,939 yards at prices ranging from 15⅞ cents to 20½ cents a yard. The latter price was paid to T. H. Lane & Co., New York, for 1,250,000 yards of unbleached 36-inch drilling.

The government is also taking large quantities of twills, which are said to be for proofing for various purposes. As a result of this the market for cotton twills is very firm and quotations in many cases are nominal.

GARMENT CLOTH

The garment cloth market continues firm, though little activity has as yet developed in this field. The heavy Government requirements are greatly curtailing production for civilian needs.

Cotton worsted fabrics, on which so much hope was placed earlier in the season, are not being taken up as freely as was expected. Prices for these remain firm, however, sellers believing that buyers are merely holding off because these fabrics in many cases represent a new venture on the part of the mills. Buyers contend that there is no basis by which they can determine whether or not the fabric will give satisfaction.

A large percentage of woolen machinery is being devoted to Government work, and comparatively little all wool cloths are being offered to the trade.

BURLAPS

Some activity developed in the burlap market which has been unusually quiet for some time. Spot lots were taken without hesitation, and importers expect to see the market expand.

As the Government of India has ceased publishing monthly export figures, only private estimates of shipments from Calcutta are available, and little is definitely known about them.

There are rumors of the American Government being behind an unusually large inquiry for ten-ounce burlap.

Certain holders have again advanced their prices, but it is not at all certain that quotation figures actually represent market values.

NEW YORK QUOTATIONS

TIRE FABRICS.

17¼-ounce Sea Island, combed.	sq. yd.	$1.60@1.70
17¼-ounce Egyptian, combed		1.40@1.45
17¼-ounce Egyptian, carded		1.30@1.35
17¼-ounce Peelers, carded		0.80@0.90
17¼-ounce Peelers, combed		1.00@1.05
American Carded Staple, 12 to 20 yarn, per lb. (pound basis)		.60
American Carded Staple, 8 to 10 yarn, per lb. (pound basis)		.55

MECHANICAL DUCKS

Hose (spot)	lb.	.55
Hose (future)		.55
Belting (spot)		.55
Belting (future)		.55

DUCKS

Single Filling (pound basis)	lb.	$ .52
Double Filling (pound basis)		.56

DRILLS

37-inch 2.35-yard	yd.	.22
37-inch 2.75-yard		.22
37-inch 3.00-yard		.15½
37-inch 3.25-yard		.14¾
37-inch 3.50-yard		.14
37-inch 3.95-yard		.13
38-inch 2.00-yard Southern	lb.	.45
38-inch 2.00-yard Northern		.48
40-inch 2.47-yard Southern	yd.	.18
40 inch 2.47-yard Northern		.20
52-inch 1.90-yard Southern		.26½
52-inch 1.90-yard Northern		.27⅝
52-inch 1.95-yard Southern		.26
52-inch 1.95-yard Northern		.27
60-inch 1.52-yard Southern		.32
60-inch 1.52-yard Northern		.32¾

SHEETINGS

40-inch 2.35-yard	yd.	.20
40-inch 2.50-yard		.17
40-inch 2.85-yard		.15½
40-inch 3.00-yard		.14¼
40-inch 3.25-yard		.13¼
40-inch 3.60-yard		.13⅜
40-inch 3.75-yard		.12½
40-inch 4.25-yard		.11
38-inch Jacket Cloths	linear yd.	.17@.18

TWILLS FOR PROOFING

37-inch 2.85-yard	yd.	$ .17
37-inch 2.35-yard		.19
37-inch 2.10-yard		.23

COTTON STOCKINETTES
(52-inch.)

E—11½-ounce	yd.	.75
A—11 -ounce		.50

BURLAPS
(Spot Carload lots.)

40-inch 7½-ounce	per 100 yards	$10.20
40-inch 8 -ounce		11.30
40-inch 10 -ounce		13.75
40-inch 10½-ounce		14.10

Chemicals and Compounding Materials

NEW YORK, August 10, 1917.

Trading was routine so far as new business was concerned, but with deliveries on old contracts heavy and stocks comparatively low firm prices prevailed. The sulphur situation, if anything, has grown worse, due to the unprecedented demand for crude brimstone for war purposes. Refiners are slow in catching up with regular contract business. Caustic soda was firmer, especially for shipment over next year. Rapeseed oil is exceedingly scarce and prices named are wholly nominal. The metal pigments ruled steady in sympathy with basic materials. Quotations for dry colors still cover a wide range, due to the various grades on the market. Sulphuret of antimony is firm, with some handlers well sold up. Solvents were inactive, but prices were firm, especially for those having a petroleum base.

ANTIMONY

Manufacturers report a good outlet for sulphuret of antimony, both domestic and imported, and quotations closed firm on the basis of 25 @ 26c. for the red, 28 @ 29c. for the golden and 52 @ 53c. for the crimson, prompt and forward delivery.

BENZOL

Large producers quote the market as steady under a better inquiry. Sales were noted of fairly large quantities on the basis of 55c. per gallon for the pure, in tanks, f.o.b. works. Some scattered lots were offered on the spot at 55 @ 60c. per gallon.

DRY COLORS

There was a moderate inquiry for rubber-makers' lampblack, for which prices held at 4½ @ 6c. per pound. Prussian blue was firmer and for the low grades 80c. appeared to be an inside price. Soluble blue, of potash base, was firm at $1.45 @ $1.75 per pound. English vermilion ruled firm around the $2 basis.

LEAD PIGMENTS

With the market for pig lead holding around 11c. per pound, corroders remained firm in their ideas, although business was inactive. White lead, sublimed, was quoted at 11 @ 11½c. per pound, as to quantity. Blue lead held at the same figures.

ZINC PIGMENTS

Spot quotations for American process zinc oxide ranged from 16½c. to 17c. per pound, with offerings scanty. Producers offered American process zinc for shipment over the second half of the year at 10¼ @ 10¾c. per pound.

SULPHUR

Aside from the heavy demand for sulphur for munition purposes the freight situation tends to tighten the market and restrict trading. Prices for crude brimstone at the mines were nominally unchanged at $35 to $37.50 per ton. Spot quotations for refined sulphur were firm on the basis of $3.85 per cwt., in barrels, for car-lots.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	*.33	@	.35
Acids, Acetic, 28%	lb.	.05¼	@	.05½
Carbolic, C. P.	lb.	.40	@	.42
Creosylic, 95%	gal.	1.05	@	1.10
Muriatic, 20 deg.	lb.	.01¾	@	.02
Muriatic, 22 deg.	lb.	.02	@	.02¼
Nitric, 38 deg.	lb.	.07¾	@	.08
Nitric, 40 deg.	lb.	.08	@	.08¼
Sulphuric, 60 deg.	lb.	.01¼	@	.01½
Tartaric, crystals.	lb.	.78	@	.80
Aluminum Flake	ton	22.00	@	24.00
Aniline oil	lb.	.28	@	.30
Antimony, metal, spot	lb.	.22	@	.23
Oxide	lb.	.18	@	.20
Sulphuret, red	lb.	.25	@	.26
Sulphuret, golden	lb.	.28	@	.30
Sulphuret, crimson	lb.	.52	@	.55
Asbestos	ton	35.00	@	50.00
Asphaltum, Egyptian	lb.	.20	@	.25
Domestic	ton	18.00	@	25.00
Barium sulphate, technical	lb.	.04½	@	.05
Chloride	lb.	.05	@	.05½
Barytes, prime white imported	ton	38.00	@	40.00
white, domestic	ton	28.00	@	32.00
off color, domestic	ton	18.00	@	22.00
Benzol, pure	gal.	.55	@	.60
Beta-naphthal, sublimed	lb.	.80	@	.85
unsublimed	lb.	.70	@	.75
Blacks, Drop	lb.	.07	@	.12
Ivory	lb.	.16	@	.30
Carbon gas	lb.	.27	@	.35
Lampblack R. M.	lb.	.04½	@	.06
Mineral blacks	ton	24.00	@	28.00
Blues, Prussian	lb.	.75	@	1.45
Soluble	lb.	1.45	@	1.75
Ultramarine	lb.	.25	@	.42
Browns, Umber, Turkey, burnt, powdered	lb.	.04	@	.05
American, burnt	lb.	.03	@	.03½
Cadmium sulphide, yellow	lb.	2.25	@	2.50
Carbon bisulphide, bulk	lb.	.06½	@	.07½
tetrachloride, drums	lb.	.16½	@	.17
Caustic Soda, 76@78%	lb.	.07¼	@	.07¾
Chalk, precipitated, light	lb.	.04½	@	.04¾
heavy	lb.	.03¾	@	.04¼
China clay, domestic	ton	18.00	@	22.00
imported	ton	25.00	@	35.00
Fossil flour	lb.	.06	@	.10
Gilsonite	ton	42.00	@	46.00
Glue, extra white	lb.	*.28	@	.38
medium	lb.	*.25	@	.28
low grade		*.22	@	.25
Glycerine, C. P. (drums)	lb.	.64	@	.65
Graphite, flake (bbl.)	lb.	.25	@	—
powdered (bbl.)	lb.	.10	@	—
Green, chrome, R. M.	lb.	.12	@	.30
Ground glass (fine)	lb.	.02½	@	—
Hexamethylene	lb.	.65	@	.70
Infusorial earth, powd'd.	ton	60.00	@	—
bolted	ton	70.00	@	—
Iron oxide, red, reduced grades	lb.	.04	@	.05
red, pure, bright	lb.	.12	@	.14
Lead, red oxide of	lb.	.13	@	.13½
sublimed blue	lb.	.11	@	.11½
white, basic carbonate	lb.	.11½	@	.12
white, basic sulphate	lb.	.11	@	.11½
Lime flour	lb.	.01½	@	.01¾
Litharge	lb.	.12½	@	.13
English	lb.	*.13	@	.14
sublimed	lb.	.12¼	@	.12½
Lithopone, domestic	lb.	.06½	@	.07
Magnesia, carbonate	lb.	.12	@	.14
calcined, heavy	lb	.11	@	.14
calcined light	lb.	.70	@	.75
Magnesite, calcined, pwd.	ton	65.00	@	70.00
Mica, powdered	lb.	.03¾	@	.05
Mineral rubber (asphaltum base)	ton	40.00	@	60.00
Naphtha, motor gasoline, (steel bbls.)	gal.	.24	@	—
68 @ 70 degrees (steel bbls.)	gal.	.30	@	—
70 @ 72 degrees (steel bbls.)	gal.	.31	@	—
Naptha 73 @ 76 degrees (steel bbls.)	gal.	.33	@	—
machine (wood bbls.)	gal	.41	@	—
Oil corn, crude	cwt.	14.00	@	14.25
corn, refined	cwt.	15.71	@	15.81
linseed (bbl.)	gal.	1.18	@	1.20
palm, Lagos	lb.	.17	@	.17¼
pine, yellow	gal.	.54	@	.56
rapeseed, refined	gal.	1.40	@	—
rapeseed, blown	gal.	1.50	@	—
rosin, first rectified	gal.	.35	@	.36
tar (commercial)	gal.	.27	@	.28
Orange mineral, American	lb.	.15	@	.15½
imported	lb.	.16	@	.20
Petrolatum, bbls., amber	lb.	.04½	@	.04¾
pale yellow	lb.	.04¾	@	.05
Pine, tar	bbl.	15.00	@	15.50
Pitch	bbl.	4.25	@	4.75
Plaster of paris	bbl.	2.00	@	2.50
Red, Tuscan	lb.	.28	@	.31
Indian (reduced)	lb.	.06	@	.08
Standard	lb.	.08	@	.11
Rosin (common to good) @ 280 lbs.	bbl.	6.00	@	6.50
Rotten stone, powdered	lb.	.02¾	@	.04¼
Rubber substitute, Black	lb.	.11	@	.13
white	lb.	.15	@	.18
brown	lb.	.14	@	.15
Shellac, fine orange	lb.	.63	@	.64
T N	lb.	.57	@	58
Bleached, commercial	lb.	.55	@	..
Bleached, bone dry	lb.	.67	@	..
Silex (silica)	ton	24.00	@	34.00
Soapstone, Powdered	ton	14.00	@	20.00
Starch, corn, powdered	lb.	.06¼	@	.06⅝
Sulphur, crude	ton	*45.00	@	50.00
roll, per 100 lbs. in	bbls.	3.70	@	4.15
flour		3.85	@	4.40
flowers		4.05	@	4.60
commercial		3.35	@	3.50
Talc, American	ton	10.00	@	15.00
French	ton	20.00	@	24.00
Toluol, pure, in drums	gal.	1.90	@	2.00
Tripolite earth	ton	60.00	@	65.00
Turpentine, pure gum— spirits	gal.	.42	@	.43
wood	gal.	.38	@	.40
Venice, artificial	gal.	.12	@	.13
Vermilion, English	lb.	1.90	@	2.10
Wax, beeswax, crude yel.	lb.	.44	@	.45
ceresin, white	lb.	.18	@	.22
carnauba, No. 3	lb.	.39	@	.40
Montan	lb.	*.35	@	.40
oxokerite, black	lb.	.75	@	.80
oxokerite, yellow	lb.	.70	@	.75
Paraffin, refined, 118/120 M.P. (bbls.)	lb.	.09½	@	.09¾
123/125 M.P.	lb.	.10	@	.10¾
128/130 M.P.	lb.	.10¼	@	.10¾
133/136 M.P.	lb.	.11¾	@	.12
Crude, 117/118 M.P.	lb.	.07½	@	.08
124/126 M.P.	lb.	.08	@	.08½
Whiting, commercial	cwt.	.95	@	1.10
Paris, white, American	cwt.	1.25	@	—
English cliffstone	cwt.	1.50	@	—
Yellow chrome	lb.	.24	@	.27
Zinc oxide, American process, horsehead brand	lb.	†.10¼	@	.10½
selected	lb.	†.10¾	@	.11
"XX red"	lb.	†.10¼	@	.10½
French process, green seal	lb.	.15½	@	.16
red seal	lb.	.15	@	.15½
white seal	lb.	.16	@	.16½
Zinc substitutes	ton	30.00	@	35.00
Zinc sulphide, pure	lb.	.07¼	@	.07¾

*Nominal. †Contract prices.

The Crude Rubber Market

NEW YORK, August 10, 1917.

The market was irregular in the absence of any important buying. A fortnight ago a firmer feeling was in evidence, but as manufacturers took hold in a small way only the support soon disappeared and prices went off in all quarters, establishing new low records for the year. In the last day or so prices again displayed some strength, due to apprehension over the shipping situation. Prices advanced slightly on a general withdrawal of offerings, especially for shipment. Importations of crude rubber over the first half of the year made a creditable showing, despite the severe shipping restrictions.

In London the price changes were confined within narrow limits. Two weeks ago first latex was cabled at 31¼d. per pound. The market later went off, business passing at 29d. Talk of more stringent restrictions in the matter of freights strengthened the ideas of sellers and today 30¾d. was asked for first latex, prompt shipment.

According to official customs returns the total importations of crude rubber into the United States for the eleven months ending with May, amounted to 38,016,489 pounds, which compares with 26,604,051 pounds for the corresponding period a year ago. Imports of guttajoolatong for the eleven-months period amounted to 2,320,221 pounds, as against 977,060 pounds a year ago.

Plantation grades sold on the 64½c. basis for first latex less than a week ago. The firmer cables from London caused sellers to advance their views to 65 @ 65½c. per pound, all nearby positions. In regards to far off future sellers were shy and prices named were more or less nominal. First latex pale crepe for October-December delivery was nominally quoted at 65½c. On January-June (1918) a price of 66c. was named, while 65½c. was quoted in some quarters

for whole of 1918 contracts. At the close it was doubtful whether sellers would actually consider 1918 bids.

Brazilian rubber was featured by firmer prices for up-river fine, which closed to-day at 70c. spot, and 69½c. for shipment, being about 1c. higher compared with prices which obtained a fortnight ago. Up-river coarse and Caucho ball were both quiet and easier, the former closing at 41½ @ 42c. per pound. Lower prices also were named for Islands fine and Cameta.

Centrals were inactive, but no selling pressure was noted at any time and prices held on a fairly even basis. Prime Corinto was quoted from 42 @ 43c. per pound, nominal.

Guayule gum is in scanty supply and no important changes in the situation can be noted. Imports are far below normal, amounting to but 489,253 pounds for the eleven-months ending with May. Pontianak is firmer, due to the recent advance in Pacific freight rates.

	Spot.	Aug.-Sept.	Oct.-Dec.
Para—Up-river fine .....lb.	70	69½	69½
Up-river medium	63	63	..
Up-river coarse	48	47½	..
Caucho ball.....	42	41½	..
Islands fine	60½	60	..
Islands coarse	30	30	..
Cameta	31½	31½	..
Madeira fine	71	71	..
Ceylons-Smoked sheets, ribbed.	65	65	65
Smoker sheets, plain.....	64½	64½	64
First latex pale crepe.....	65	65	65
Amber crepe	63½	63½	63
Clean brown crepe.....	61	61	61
Centrals—Corinto, prime....	42½	42½	..
Esmeralda, prime.....	42	41½	..
Mexican scrap.....	41	41	..
Balata, sheets.....*	63	..	..
Balata, block .....*	56	..	..
Guayule	37	..	..
Africans—Rio Nunez, string..*	67	..	..
Massai, red.....*	55	..	..
East Indian Pontianak.....	12½	11¾	..
Palembang	12¾	12	..

* Nominal.

Among the Dealers

JOHN JONES has established a tire and vulcanizing shop at Burlington, Wis.

SALL BROTHERS have opened a new accessory store at 1022 Fourteenth Street, Washington, D. C. In addition to handling a complete line of automobile accessories, Keystone tires will be carried.

H. S. WHIPPLE has purchased a half interest in the tire shop on Fourth Street, Sterling, Ill., operated by his brother M. E. Whipple.

THE SAVAGE TIRE SALES CO., Des Moines, Iowa, has opened a sales office at 1322 Grand Ave. The accessories Sales Co. formerly handled these tires. The company will continue to retain its warehouse at 120 West Fifth Street.

THE ALLEN GENERAL TIRE CO. of 1427 Broadway, Seattle, Wash., has opened a new tire service at 1905 Second Ave. The new station will be known as the Allen & Allen Service Station.

E. F. FULLER and D. L. COWLEY, who conduct a vulcanizing shop in Elmwood, have rented a room in the Steenberg building, Farmington, Ill., where they will open a second vulcanizing shop.

A new repair and vulcanizing shop has been opened in the Nott Building, Galva, Ill., by the firm of HALL & SPAHN. The new firm has purchased the business formerly operated by Roy Pate.

SELSER BROTHERS have opened a tire shop at Cloquet, Minn.

THE MANUFACTURERS' TIRE & RUBBER CO., Atlantic City, N. J., has opened a branch store at 2118 Atlantic Avenue, in charge of Frank C. Myers, assisted by Raymond Sweeney.

W. J. CHISHOLM and W. C. MILLER will engage in business at Mount Clemens, Mich., having secured the agency for Dodge cars. They will also carry United States tires. Both men were formerly associated with the Detroit branch of the U. S. Tire Co. Chisholm will act as salesman and Miller as office manager.

HARRY DUPUIS has opened a vulcanizing shop at Sigourney, Iowa.

The new Ford Garage at Parma, Mich., which was recently opened, will also give vulcanizing service.

L. A. GERBER will open a tire and accessory shop at 517 State street, East St. Louis, Ill. He will also do vulcanizing and general tire repair work.

THE COVEY MOTOR CAR CO., Portland, Ore., has been appointed dealer for Kelly-Springfield tires.

P. C. LUDOVIC and J. G. C. NITSCHE have taken over the National Defiance Tire Agency, which is located at 17 North Arizona street, Butte, Mont. They will operate under the firm name of the Montana Tire Sales Co., and will handle all standard makes of tires and a line of all accessories. They have also taken over the Butte Tire Shop which is located at the same address, and will enlarge the plant.

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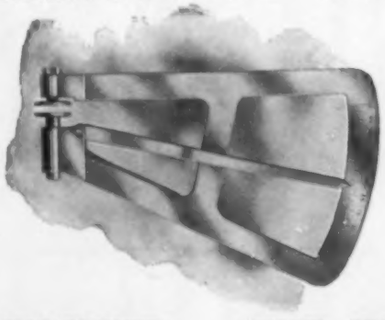

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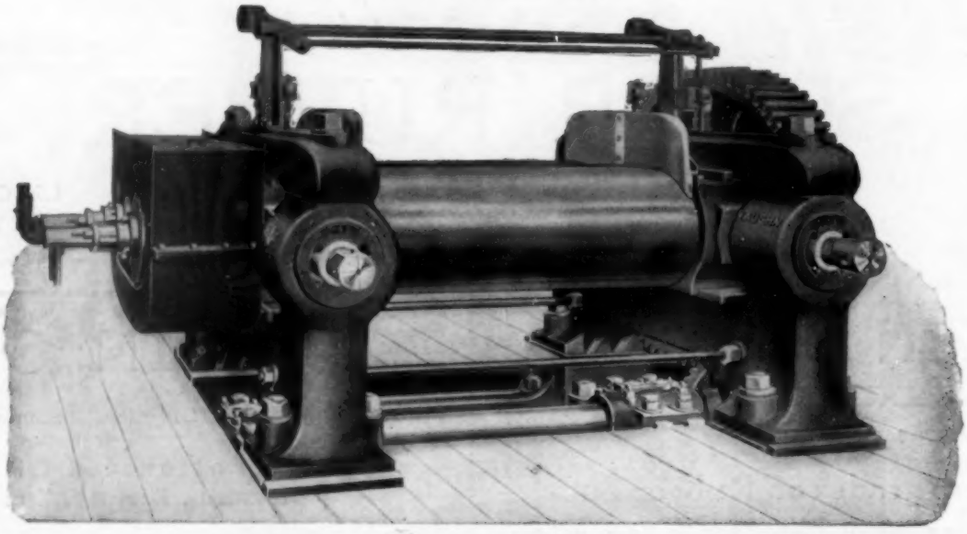

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